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ABSTRACT

Comprehensive information in the field of vocational education is a necessity for purposes of annual state plans, evaluations, and 5-year projections. All available information about career education in Arizona through mid-1970 has been compiled in this report, and an annual supplement will update it. The report also shows how well the educational system of the state is meeting its responsibility of preparing students for careers below the professional level. For these reasons the report reviews: (1) the legislative history and development of vocational education in Arizona, (2) the school programs at all levels, (3) manpower training and private programs, (4) methods of helping students determine career choice, (5) program planning and budgeting, and (6) research and change. Material in the report was reviewed by the State Department of Education, State Advisory Council, and other agencies and institutions where appropriate, and was useful to the State Advisory Council in preparing its annual report to the Office of Education. Recommendations and conclusions are included, and numerous photographs supplement the text. (CD)

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Learning a Living

A Report on Career Education in Arizona

VT012373

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LEARNING A LIVING

CAREER EDUCATION IN ARIZONA

by

ARTHUR M. LEE

Director, Research Coordinating Unit

Dorris Fitzgerald, Editor

A Report For
The State Department of Vocational Education
J. R. Cullison, Director

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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NORTHERN ARIZONA UNIVERSITY
1970

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LEARNING A LIVING

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FOREWORD

This report and the material it contains began as a research project more than three years ago to bring together in a single document all the available information about career education in Arizona. It was first scheduled for publication in the early summer of 1968, and has been rescheduled several times to include later and more complete information. Each postponement seemed advisable because of new developments taking place in all of the states, including Arizona. During the past year in particular, new planning and evaluation programs have been introduced, the State Department of Vocational Education has been reorganized, a new State Advisory Council has been appointed, federal reporting forms have changed, and new data and new procedures for getting them have been developed. By waiting until mid 1970, the first full school year under the Vocational Education Amendments of 1968 can be reported. An annual supplement is planned to update the information in this report each year for the benefit of those who may find it useful.

The need for a comprehensive report on career education in Arizona stems partly from requirements for planning and evaluation in the federal legislation of 1963 and 1968; annual state plans for vocational-technical education are required in considerable detail, and goals and objectives must be projected five years ahead. A more important reason for this study, however, is to determine how well the educational system of the state is meeting what many observers consider its most critical responsibility -- preparing students for careers below the professional level in today's technological society. It is for this reason the report is being published especially for the State Department of Vocational Education and the State Advisory Council for Vocational Education. Both of these agencies have statutory responsibilities to report each year on the status and progress of vocational education.

It is particularly appropriate that in Arizona the research for the State Department and the State Advisory Council reports is being conducted by one of the universities. For a number of years the State's three universities have taken turns providing research reports on subjects of major public concern for the semiannual Town Halls sponsored by the Arizona Academy. This report on career education, while prepared for a larger audience and differing somewhat in content, follows the same exacting standards and comprehensive detail as the Town Hall reports. It is, in fact, the second report of this kind prepared by the Research Coordinating Unit; the first was an Arizona Academy Town Hall report on Crime and Delinquency several years ago.

Learning A Living has been from the first a cooperative project using the talent and professional abilities of many individuals in a number of different institutions and agencies. Mr. J. R. Cullison, Associate Superintendent and State Director of Vocational Education, who originally suggested the project, has continued to give it his personal attention and has supplied much of its direction and support during the three years of its preparation. Mr. Eugene Dorr, Assistant State Director of Vocational Education, has contributed so much of his own ability, both as a writer and as a vocational educator, that it would not be unreasonable to list him as one of the authors. Each member of the State Department professional staff has made extensive contributions of data and has often suggested interpretations of the data based on many years of experience.

The research, of course, and the analyses made of the data collected -- as well as the final interpretations and conclusions -- have been the responsibility of the Research Coordinating Unit. Here, too, it has been a cooperative enterprise entirely, Mrs. Diane McCarthy was in charge of the initial research three years ago, and while head of the Division of Data Systems on the RCU staff provided most of the statistical materials. Mrs. Dorris Fitzgerald, head of the Research Dissemination and Library Services Division of the RCU, and Editor of Publications has literally put the report together -- designing page layouts; selecting tables, charts and pictures; managing the publishing schedule; and making arrangements for many details which only an editor can recognize in the final product. Mrs. Jeri Alcocer, secretary to the RCU Director, has probably spent more time on the preparation of the manuscript than anyone except the editor, and has typed each page many times. Further assistance was given by Mrs. Ann Harris who typed the final drafts. The basic design and the written language of the report -- both relatively easy after the work of so many others -- were supplied by the RCU Director, Dr. Arthur M. Lee.

It is impossible to list all of the individuals in Arizona schools and universities, other state agencies, business and industrial organizations, and members of working committees who have contributed substantially to this project. Many of them, however, cannot be omitted. This is especially true of Dr. Virgil W. Gillenwater, Executive Vice President of Northern Arizona University, Dr. Chester B. Ainsworth, Dean of the School of Applied Science and Technology, Dr. John Glenn, State Coordinator of Teacher Education and Dr. Calvin James, Chairman, Department of Industrial Education at Northern Arizona University. All have been consulted on numerous occasions and have given generously of their advice and counsel. At Arizona State University, Mr. Ray Weinhold, a doctoral candidate in education administration, contributed to the section in Chapter IV on cooperative education. Miss Susie Sato, another graduate student in history, collected the documents from which the first part of Chapter I was written. At the University of Arizona, Dr. Amy Knorr, Associate Professor of Home Economics, assisted with materials in the area of her specialization; and Dr. Steven L. Barsby, Assistant Professor of Economics, provided materials and professional assistance on cost and finance. Mr. Carl Squires, Coordinator of Occupational Education in the Maricopa Junior College District, with the assistance of staff members from the MDT office wrote the section on MDTA in Chapter III.

Mr. F. R. "Chick" Vihel, Executive Secretary of the State Advisory Council, has probably given as much of his time and expert assistance to the entire project as any other person outside of the RCU staff. Mr. Vihel shared some of the responsibility for its initiation as a member of the Arizona Vocational Research Council and as Personnel Manager of one of Arizona's largest industries. Many of the actual details and conclusions throughout the report were developed in conferences with him, and although responsibility for the final product rests solely with the author Mr. Vihel's counsel has been invaluable.

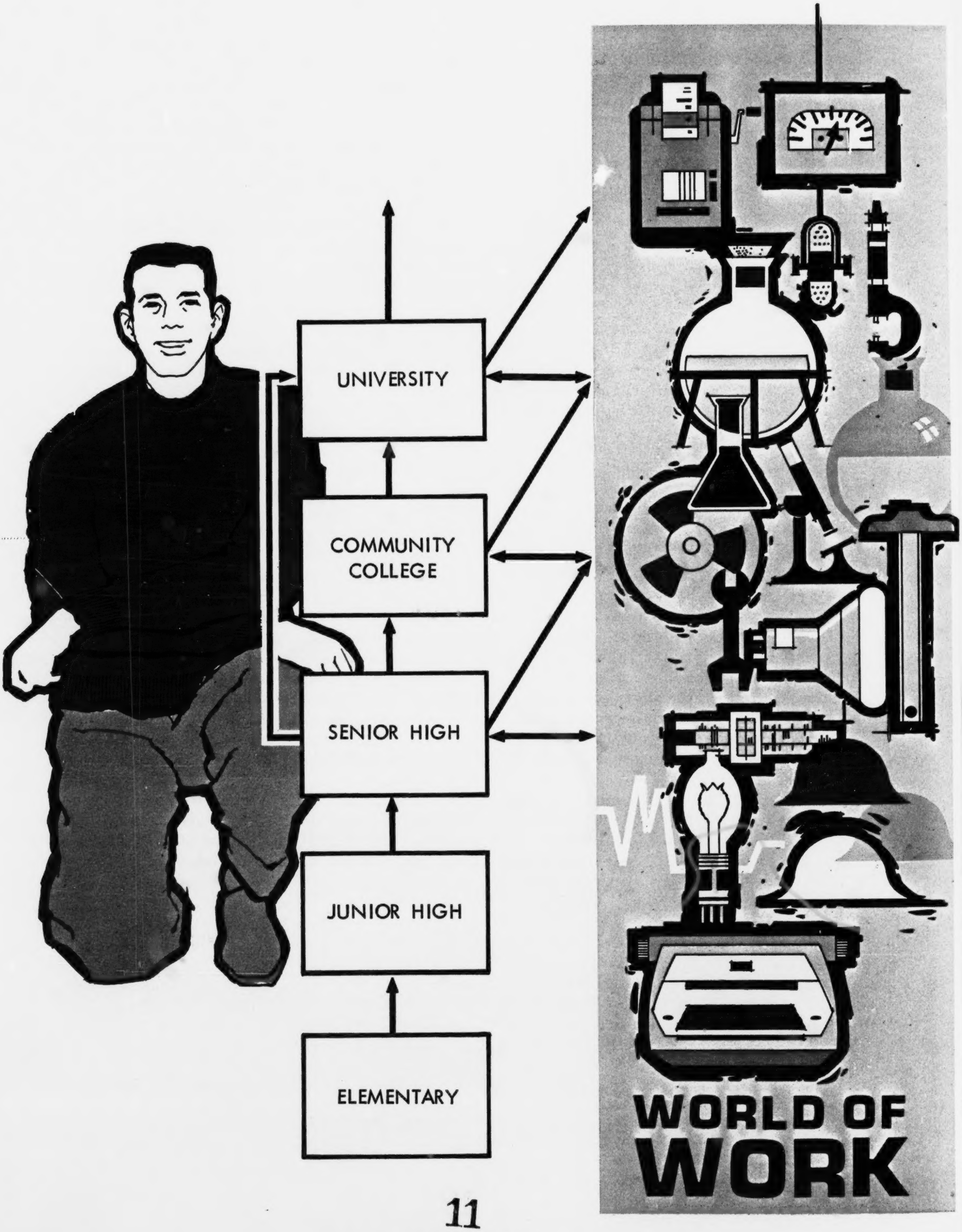
The State Advisory Council's first annual report was prepared at the same time the present study was being brought to a conclusion, and full use of the research was made available while it was still in draft form. This is acknowledged in the Council's Report, and some of the conclusions and recommendations in that report were subsequently incorporated into the last chapter of *Learning a Living*. The Council has responded to this arrangement by generously supporting part of the costs of publishing *Learning a Living*.

In one respect this report differs so noticeably from most research that the casual reader may have difficulty in associating it with a strictly professional publication. This is in the liberal use of photography. It is intended to serve two purposes, both of which may be considered serious efforts to communicate rather than to entertain or decorate: One is to report through visual means the variety and scope of career education which often loses some of its realism when described in words alone; the other is to focus attention on particular details which are easily lost in page after page of tables, charts and text.

Each picture has been carefully selected from a large number requested from the schools or photographed expressly for the purpose intended in its use. Mrs. Marguerite B. Cooley, State Librarian and Archivist, arranged for the photographs taken from early documents in Chapter I. Nearly every secondary school and community college in the State, and many other educational institutions and agencies, have contributed photographs, a large number of which were not used only because of the large selection available. Charts and graphs are a more familiar form of reporting visually the results of research, and most of the illustrations in this report were prepared by Mr. Max Coulson, Art Supervisor at AiResearch Manufacturing Company of Arizona. The cover was designed by Mr. Robert Jacobson, Assistant Professor of Art at Northern Arizona University.

Each chapter of the report has been reviewed in draft form by the State Department of Vocational Education, the State Advisory Council, and other agencies and institutions where appropriate. Whenever questions have been raised concerning facts or interpretation, they have been rechecked and additional sources examined for final determination. Footnote references to statements in the text have been largely omitted because of redundancy. Virtually all statistical research has been reported in tables which accompany the text, and the source of each is indicated immediately below the data. Additional information from other sources has been included in appropriate places, not as original research but to provide a more complete treatment of the subject. Footnotes are rarely used in such cases because the sources are either indicated in the text or the material is considered to be sufficiently established as general knowledge so as not to require additional documentation. The full report was again reviewed by the State Department of Vocational Education and the State Advisory Council, and the author is grateful for a number of suggestions which were incorporated into the final copy.

It is the hope of the Research Coordinating Unit, the State Department of Vocational Education, the State Advisory Council, and Northern Arizona University that this publication will serve the purpose for which each element was included -- to report accurately and well the kinds and extent of career education in Arizona.


UNIVERSITY
COMMUNITY COLLEGE
SENIOR HIGH
JUNIOR HIGH
ELEMENTARY
WORLD OF WORK

The Career Ladder

CHAPTER I

CHANGING TRADITIONS

Occupational education should be based on a spiral curriculum which treats concepts at higher and higher levels of complexity as the student moves through the program. Vocational preparation should be used to make academic education concrete and understandable, and academic education should point up the vocational implications of all education.

-- House Report
Vocational Education Amendments of 1968

For more than two million years man has been engaged in career education. The term is relatively new, but the practice of learning a living has remained a basic human activity from caveman to nuclear technician. In the sense that it is a fundamental everyday activity, career education is commonplace; but in American schools vocational education, as it has been called, has never shared the prestige nor the support given to purely academic subjects. That situation began to change in the 1960's and may be expected to change extensively in the 1970's.

Schools are by far the nation's major source of manpower. The great majority of workers entering the labor force in jobs of every description and at every level come directly from high school or college. Jobs that require less than a baccalaureate degree are classified in federal statutes as vocational or technical, and these are the jobs that nearly 80% of students now in high school will enter. For most students, what they learn in school is their only preparation for the world of work. Career education is therefore the major function of the school system regardless of other objectives expressed by educators and the general public.

American schools have always been career oriented for a few fields like teaching, business, law, and the ministry; and until recent years the general education needed in these careers was adequate for entry into most non-professional jobs. Automation and advancing technology have changed this. The number of jobs requiring no specialized training at all has been rapidly declining for more than two decades, and the skill requirements in virtually all employment are becoming greater and more complex. The historic imbalance in the schools between professional and non-professional job training has more serious effects now on both students and the nation's economy than at any previous time.

As the decade of the sixties ended and the seventies began, it was evident that a restructuring of American education would be a major development in the years ahead. Increasingly strident voices in education, in business and industry, in labor, and in the professions where technical help is needed most, are calling for a speedup of changes already underway.

Before Smith-Hughes

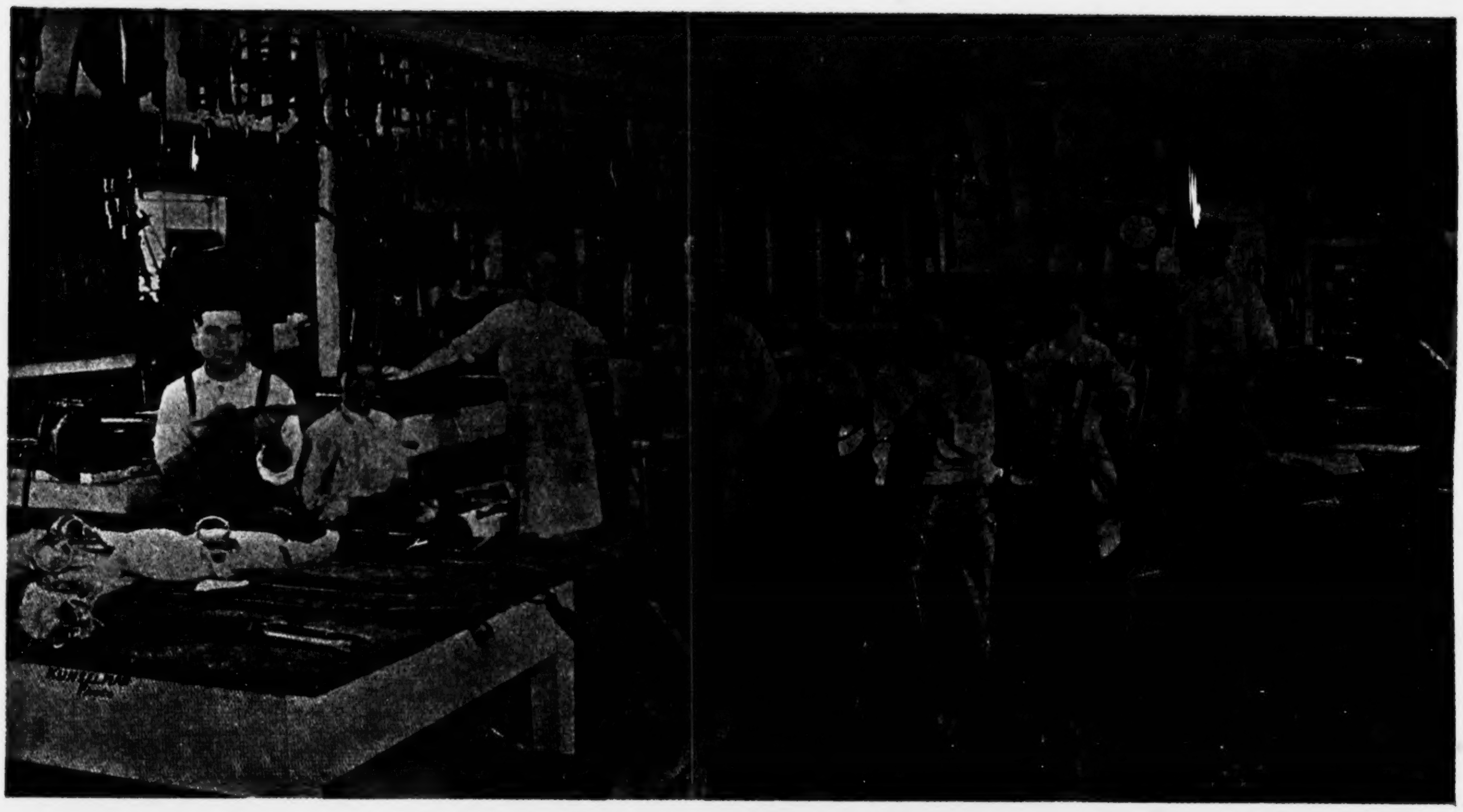
A certain amount of career education, much as we know it today, has been part of the school program for a long time. In Arizona, early territorial schools were necessarily limited to the basic academic subjects, but before the turn of the century girls at the Phoenix Indian School were taught sewing and cooking; boys were taught dairying, agriculture, meat cutting, wagon making, harness making, tinning, plumbing and carpentry. Mission schools on the Indian reservations turned out craftsmen in almost every occupation associated with transportation, mining, agriculture, construction, and domestic sciences. And in 1905 manual training and domestic science were authorized in the public schools.

Then, as now, financial support of this kind of training was a problem. A report from the Superintendent of Public Instruction in 1906, observed: "The only possible question there can be about such training and making skillful, in connection with our schools, is the question of expense." In 1914-1915 vocational education in nineteen high schools cost the state $30.00 per student, and the State Superintendent considered this "warranted only while the work is new and the interest has to be created." But also then, as now, failure of the schools to provide this kind of education for all students who needed it was a matter of concern. An article in *The Arizona Teacher* in 1915 observed: "High school authorities should study how they could serve the ninety-five percent instead of catering to the five percent." The State Superintendent reported the same year "a marked tendency in all schools of the State looking toward making the system of public schools more and more practical . . . shown in the constantly increasing demand for industrial education."

This emerging interest in career education in Arizona early in the twentieth century was a national development. The industrial revolution of the nineteenth century had gone far in changing American life from its earlier predominantly rural patterns to the new urbanization. Growing demands were being made on the federal government by the 1890's to assume an obligation for vocational education at the high school level as it had thirty years earlier for agricultural education at the college level. A National Society for the Promotion of Industrial Education was founded in 1906. This organization and similar regional organizations succeeded in having laws providing for vocational education adopted in a number of states. They persuaded Congress in 1914 to establish a Commission on National Aid to Vocational Education. The Commission's report to Congress resulted in the Smith-Hughes Act of 1917. The Smith-Hughes Act was not the result of World War I, an assumption often made. In actual fact, international developments just prior to World War I delayed passage of federal vocational education laws for several years. The 1917 Act authorized $7.5 million for agricultural, industrial, and home economics education. It was enacted primarily to meet the demands of an economy just reaching industrial maturity.

Five Decades of Growth

The Arizona Legislature passed a bill early in 1917 providing for vocational education under the Smith-Hughes Act, and the next year a State Director was appointed. Arizona led all states in the Pacific region including Washington, Oregon and California the first year in the number of program applications from schools for Smith-Hughes approval. There were fifty applications, and the national average was thirty-eight. Fourteen of Arizona's applications were approved, which again exceeded the number approved in fifteen other states including Wisconsin,



Shoe and Harness Shop, Phoenix Indian School
Native American, Vol. 17, No. 13, July 1, 1916

THE MEANING OF VOCATIONAL EDUCATION

May 26, 1919.

Managing Editor,
Arizona Teacher,
Tucson, Aribona.

Dear Madam:

Two years ago the expression "vocational education" was meaningless to teacher and layman alike. It was confused with manual training and then with industrial education. Today it is generally known that vocational education is any education that prepares a boy or girl with a definite life career purpose. Not only does it aim at teaching skill, but it includes a knowledge of applied mathematics, applied sciences, applied drawing, English, American history and citizenship.

Have the people been converted to vocational education? Evidence that they are in favor of practical education is abundant. The Federation of Labor meeting in Miami last year passed a resolution endorsing vocational education. The Democrats of Arizona inserted a plank in the party platform in favor of vocational education. A Republican Governor in his message to the Legislature mentioned vocational education. The Arizona Federation of Woman's Clubs at the convention in Yuma went on record in their resolutions backing vocational education. The last session of the Legislature passed two bills on vocational education providing most generous state aid for every school district in the State that organizes classes in agriculture, trades and industries, and home economics.

The people have spoken their minds on this new type of education that aims to prepare girls for homemaking courses and boys for a definite life work. Indications are that every high school in the State and many of the large rural district schools will take advantage of the fund provided by the State and Federal Government under the new legislation.

It is very important that every school district in the State should get in touch with the Department of Vocational Education and find out what money is available under the new legislation.

Very truly yours,
I. Colodny,
Director of Vocational Education.

Letter to the Editor, 1919
The Arizona Teacher and Home Journal
Vol. 6-7, Sept. 1917-June 1919

Plumbing and Sheet Metal Shop, Phoenix Indian School
Native American, Vol. 17, No. 13, July 1, 1916

Agricultural Class Breaking Ground at Safford
Bureau of Education *Bulletin* 1917, No. 44, Plate 2

VOCATIONAL TRAINING AT TEMPE NORMAL

ONE of the most far-reaching effects of the great war, is the opening of the eyes of peoples and governments to the vital need of more and better education of the youth. To quote Professor Erskine of the A.E.F. University, "Education has become the chief concern of statesmen. . . . The new program of education will discipline the intellect and will train special skills. It might be broad enough to include all efforts that enlarge the vision of the peoples, that make them tolerant and keep them open minded." In another place, Professor Erskine reminds us that "The new world into which we are now entering will be, it seems, a world of experts."

Recognizing the fact of this coming demand for a newer and better system of education, the Tempe Normal School of Arizona has planned and arranged a series of special courses in vocational training. For carrying forward the work of these courses, the state has provided a building and equipment, the completeness of which may be judged by the fact that its total cost is over $100,000. This building with all its apparatus and machinery, the most complete of its kind in the southwest, is a public institution and is open to all young men and women of Arizona, free of any tuition charge except the general registration fee of $5.00. The instructors are all specialists in their respective lines of work, and of broad experience in teaching. Tempe Normal School wishes to assist all those students who have some "hobby" or special aptitude which they desire to develop by special training, and particularly invites the attention of his school graduates who, just now are looking into the future.

Three types of vocational courses are offered. The first is a series of two year courses open to high school graduates who desire to prepare to become departmental teachers or supervisors of MANUAL TRAINING, HOME ECONOMICS, ART, AGRICULTURE, KINDERGARTEN TRAINING or COMMERCIAL SUBJECTS. These courses should be attractive because of the growing demand for such teachers who command the higher salaries.

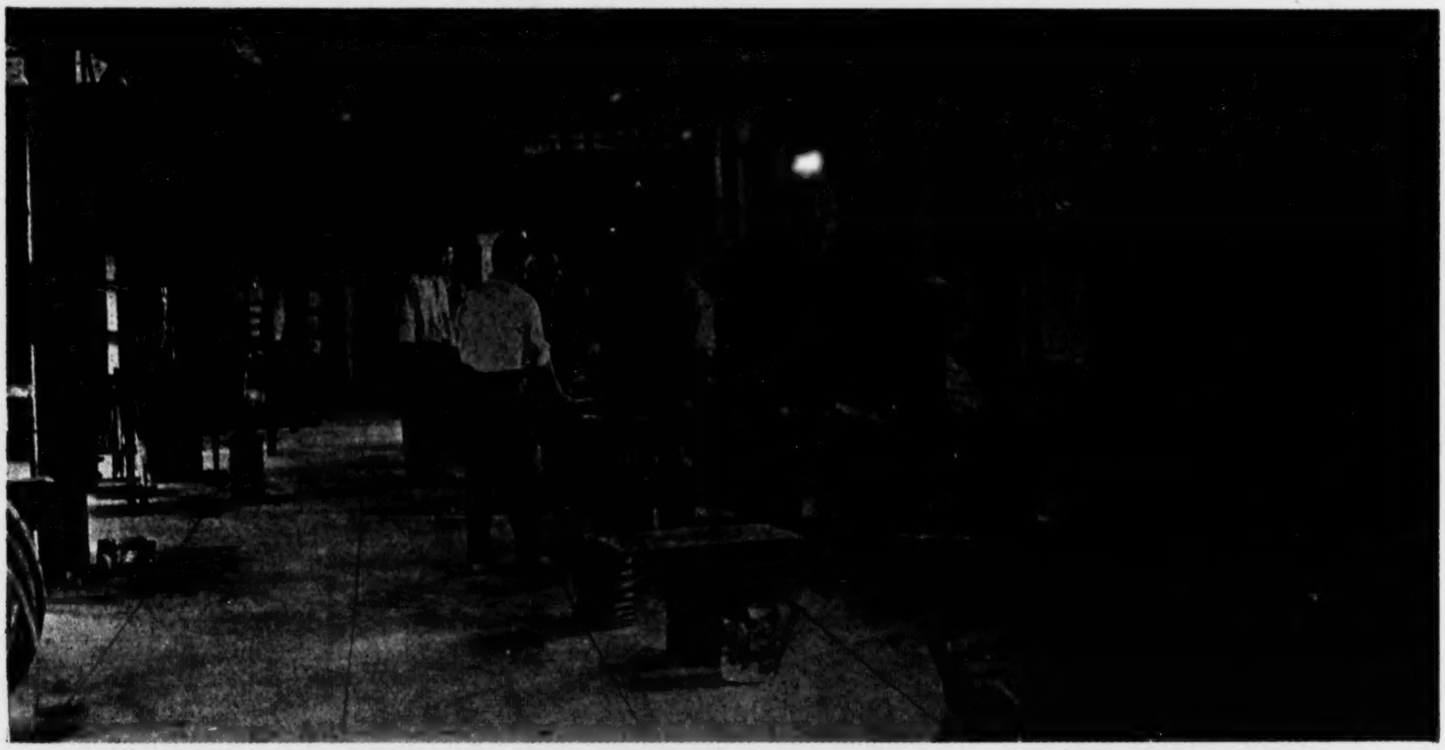
The second group of two year courses in the special lines of work above mentioned are open to high school graduates who do not wish to become teachers, but who wish to devote the greater part of their time to the vocational subject of their choice.

Third in order are the partial courses offered for the benefit of students of some degree of maturity whose previous preparation may not qualify them for admission to the regular courses, but who wish to obtain special training for self improvement in wood working, machine shop or machine design, or, in fact, almost any line of vocational work in which a class of four or five can be organized. No special prerequisites are required for entrance into these courses, and students may enter at any time.

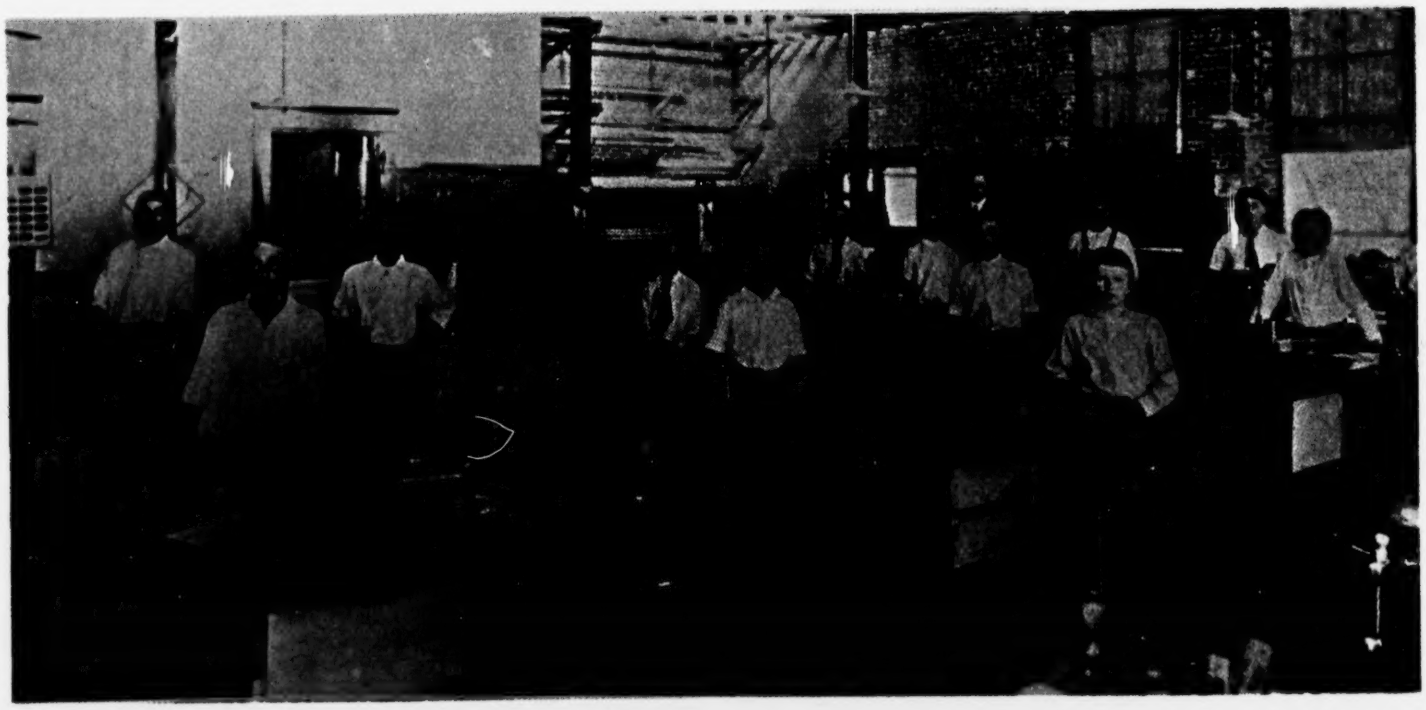
The dormitory accommodations for students living at a distance are unsurpassed and expenses are reasonable. For further particulars relating to the above courses or other matters concerning the school, correspondence is solicited, as it is the desire of the management to bring the advantages of the institution to the attention of the students for whom it is intended.

Address all communications to
A. J. Matthews, President, Tempe, Arizona

A page from *The Arizona Educator and Home Journal*, Vol. 8
1919-1920



Blacksmith Shop, Phoenix Indian School
Native American, Vol. 17, No. 13, July 1, 1916



Manual Training Shop, Monroe School, Phoenix
Bureau of Education *Bulletin* 1917, No. 44, Plate 10

Districts with 200 children of school age might employ one teacher of these subjects for each 100 pupils in average attendance.

Graduates of manual training or domestic science schools, with at least one year's experience, might be licensed to teach; others must pass such examination on these subjects as the Board of Education might prescribe.

Stephen B. Weeks, *History of Public School Education in Arizona*, Department of Interior *Bulletin of Education* Government Printing Office, 1918.

Provisions For Manual Training And Domestic Science In Arizona Territorial Law, 1905

For years we have been educating our children on the basis of mind training only. Today, by the same methods as are used in the ordinary classroom and in the science laboratory, boys and girls are taught the principles and problems of the various trades. We are coming to see that the community owes something more to the children than merely to train their minds; that it must train hands as well so that they may be able to go out into the world when through school and be intelligent enough industrially to make a beginning in life's work whether it be teaching, preaching, medicine, law, carpentry, bricklaying, in fact, in any of the trades or professions.

. . . .

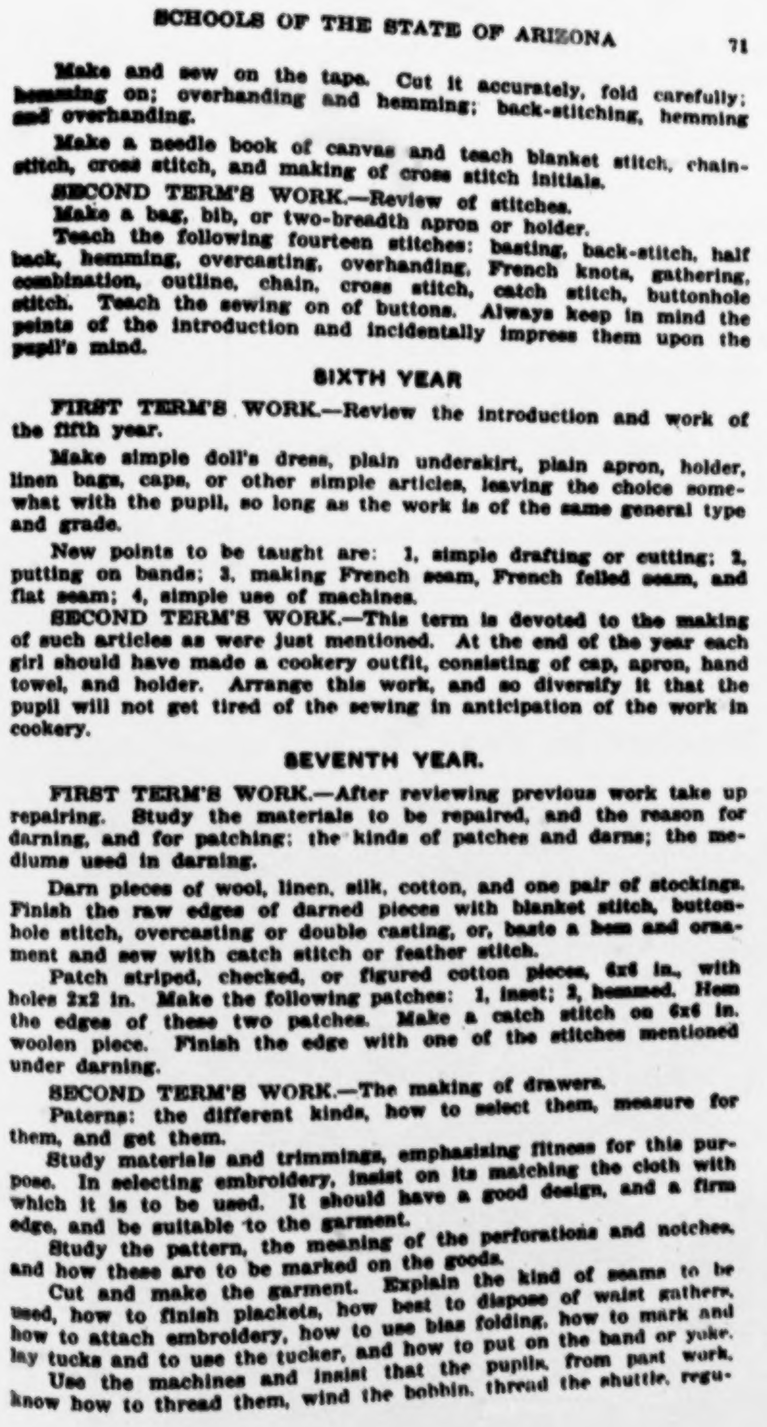
There seems to be a difference of opinion as to the time a child should begin vocational training. Most pupils begin to take up the work in the grammar grades, and with plenty of constructive work through all the grades of the grammar school leading up to a serious systematic training in bench work in the two upper grades for the boys, and in the household arts - cooking, and sewing and the care of the home, for the girls.

Howard Beebe Ross, *Progress of Industrial Education, The Arizona Teacher*, Vol. 1-2, Feb.-Jan. 1914-1915, pp. 16-17.

Views Of An Arizona Educator In 1914

Telegraphy Class At Winslow In 1917
Report of the Superintendent of Public Instruction
February to December, 1918

Pages from *The Course of Study of the Common Schools of Arizona* in 1912



SCHOOLS OF THE STATE OF ARIZONA 71

Make and sew on the tape. Cut it accurately, fold carefully; hemming on; overhanding and hemming; back-stitching, hemming and overhanding.

Make a needle book of canvas and teach blanket stitch, chain-stitch, cross stitch, and making of cross stitch initials.

SECOND TERM'S WORK.—Review of stitches.

Make a bag, bib, or two-breadth apron or holder.

Teach the following fourteen stitches: basting, back-stitch, half back, hemming, overcasting, overhanding, French knots, gathering, combination, outline, chain, cross stitch, catch stitch, buttonhole stitch. Teach the sewing on of buttons. Always keep in mind the points of the introduction and incidentally impress them upon the pupil's mind.

SIXTH YEAR

FIRST TERM'S WORK.—Review the introduction and work of the fifth year.

Make simple doll's dress, plain underskirt, plain apron, holder, linen bags, caps, or other simple articles, leaving the choice somewhat with the pupil, so long as the work is of the same general type and grade.

New points to be taught are: 1, simple drafting or cutting; 2, putting on bands; 3, making French seam, French felled seam, and flat seam; 4, simple use of machines.

SECOND TERM'S WORK.—This term is devoted to the making of such articles as were just mentioned. At the end of the year each girl should have made a cookery outfit, consisting of cap, apron, hand towel, and holder. Arrange this work, and so diversify it that the pupil will not get tired of the sewing in anticipation of the work in cookery.

SEVENTH YEAR.

FIRST TERM'S WORK.—After reviewing previous work take up repairing. Study the materials to be repaired, and the reason for darning, and for patching; the kinds of patches and darns; the mediums used in darning.

Darn pieces of wool, linen, silk, cotton, and one pair of stockings. Finish the raw edges of darned pieces with blanket stitch, buttonhole stitch, overcasting or double casting, or, baste a hem and ornament and sew with catch stitch or feather stitch.

Patch striped, checked, or figured cotton pieces, 6x6 in., with holes 2x2 in. Make the following patches: 1, inset; 2, hemmed. Hem the edges of these two patches. Make a catch stitch on 6x6 in. woolen piece. Finish the edge with one of the stitches mentioned under darning.

SECOND TERM'S WORK.—The making of drawers.

Paterns: the different kinds, how to select them, measure for them, and get them.

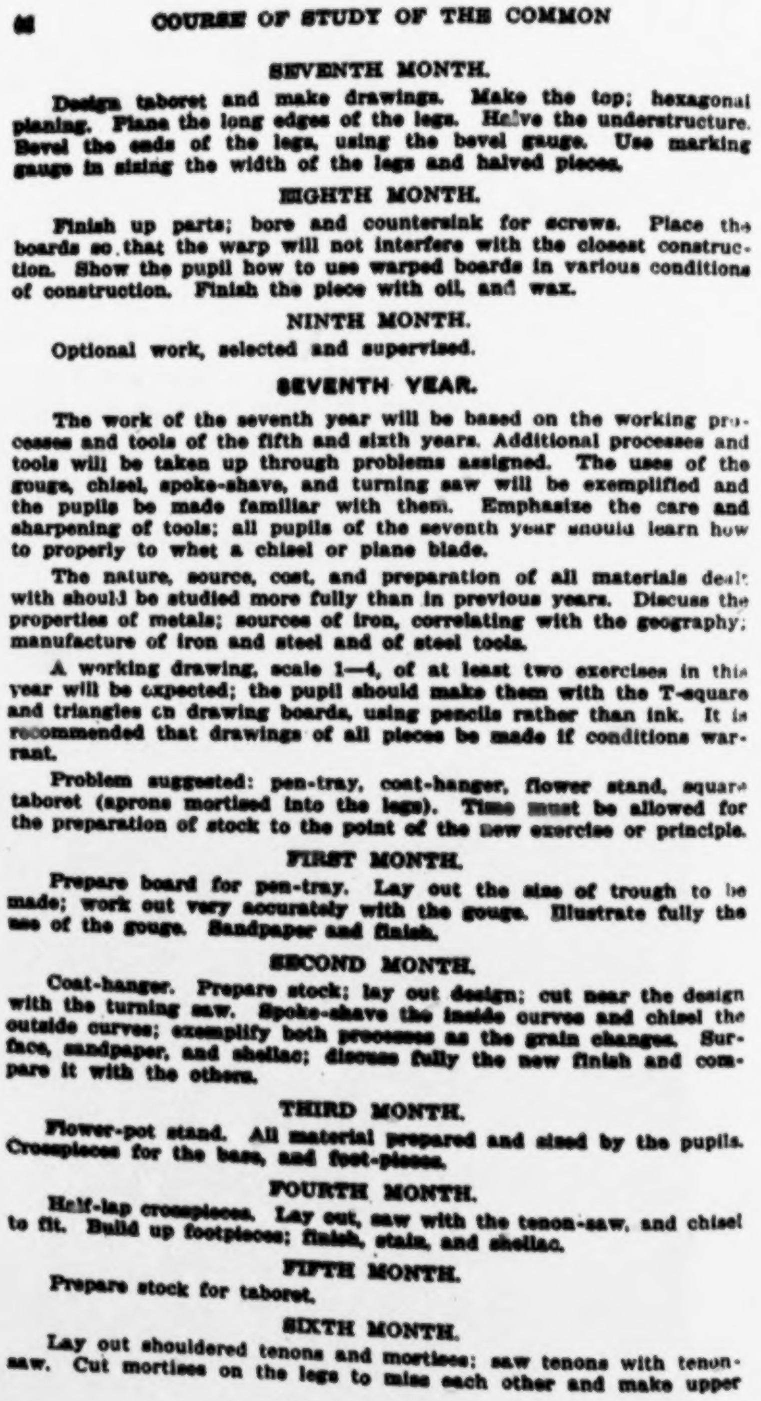
Study materials and trimmings, emphasizing fitness for this purpose. In selecting embroidery, insist on its matching the cloth with which it is to be used. It should have a good design, and a firm edge, and be suitable to the garment.

Study the pattern, the meaning of the perforations and notches, and how these are to be marked on the goods.

Cut and make the garment. Explain the kind of seams to be used, how to finish plackets, how best to dispose of waist gathers, how to attach embroidery, how to use bias folding, how to mark and lay tucks and to use the tucker, and how to put on the band or yoke.

Use the machines and insist that the pupils, from past work, know how to thread them, wind the bobbin, thread the shuttle, regu-

Home Economics



68 COURSE OF STUDY OF THE COMMON

SEVENTH MONTH.

Design taboret and make drawings. Make the top; hexagonal planing. Plane the long edges of the legs. Halve the understructure. Bevel the ends of the legs, using the bevel gauge. Use marking gauge in sizing the width of the legs and halved pieces.

EIGHTH MONTH.

Finish up parts; bore and countersink for screws. Place the boards so that the warp will not interfere with the closest construction. Show the pupil how to use warped boards in various conditions of construction. Finish the piece with oil, and wax.

NINTH MONTH.

Optional work, selected and supervised.

SEVENTH YEAR.

The work of the seventh year will be based on the working processes and tools of the fifth and sixth years. Additional processes and tools will be taken up through problems assigned. The uses of the gouge, chisel, spoke-shave, and turning saw will be exemplified and the pupils be made familiar with them. Emphasize the care and sharpening of tools; all pupils of the seventh year should learn how to properly to whet a chisel or plane blade.

The nature, source, cost, and preparation of all materials dealt with should be studied more fully than in previous years. Discuss the properties of metals; sources of iron, correlating with the geography; manufacture of iron and steel and of steel tools.

A working drawing, scale 1—4, of at least two exercises in this year will be expected; the pupil should make them with the T-square and triangles on drawing boards, using pencils rather than ink. It is recommended that drawings of all pieces be made if conditions warrant.

Problem suggested: pen-tray, coat-hanger, flower stand, square taboret (aprons mortised into the legs). Time must be allowed for the preparation of stock to the point of the new exercise or principle.

FIRST MONTH.

Prepare board for pen-tray. Lay out the size of trough to be made; work out very accurately with the gouge. Illustrate fully the use of the gouge. Sandpaper and finish.

SECOND MONTH.

Coat-hanger. Prepare stock; lay out design; cut near the design with the turning saw. Spoke-shave the inside curves and chisel the outside curves; exemplify both processes as the grain changes. Surface, sandpaper, and shellac; discuss fully the new finish and compare it with the others.

THIRD MONTH.

Flower-pot stand. All material prepared and sized by the pupils. Crosspieces for the base, and foot-pieces.

FOURTH MONTH.

Half-lap crosspieces. Lay out, saw with the tenon-saw, and chisel to fit. Build up footpieces; finish, stain, and shellac.

FIFTH MONTH.

Prepare stock for taboret.

SIXTH MONTH.

Lay out shouldered tenons and mortises; saw tenons with tenon-saw. Cut mortises on the legs to miss each other and make upper

Manual Arts

Iowa, Oregon, and Florida. As an indication of how current vocational education under the Smith-Hughes Act could be, three of Arizona's programs approved the first year were in radio and buzzer work. Cost, however, was still a problem. The school year of 1923-24 was the first year enough local funds were available to match all of the federal allotment available to the state.

In 1929 Congress increased federal support. In 1936 under the George-Deen Act more money and a new occupational category, distributive education, were added. Military production in World War II became a critical factor in national and international planning, and emergency laws often with 100 percent federal financing replaced traditional school programs. The sole objective was to provide adults with specific skills in the shortest time possible. The result was a spectacular demonstration that vocational education can train workers to greatly increase production.

At the end of World War II it was evident that federal legislation needed revision; and the George-Barden Act was adopted in 1946. More funds were provided for the same occupational categories and some pre-war restrictions were removed. A new era of career education was beginning. The training experiences of World War II and a generally older group of students coinciding with a rapid growth of automation and mechanization were to have major impacts on school programs. In the late 1950's two more services, health and technical education, were added to those receiving federal support. A complete overhaul of the federal support program was needed, however, and more than any other single factor pointing to this need was an accelerating post-World War II shift from blue collar and agricultural workers to skilled white collar employment.

The result, after a national study by dozens of experts, was a landmark bill, the Vocational Education Act of 1963. Greatly increased funds were made available for state and local vocational education programs. These programs were intended to fit individuals for gainful employment in many areas not covered by previous laws, including business and office work and new technical occupations. Additional changes were anticipated and provisions were made to review and update the 1963 legislation five years later.

Table 1

Establishment Of Service By Federal Legislation

Legislation	Date	Service Established
Smith-Hughes	1917	Useful Home Economics Agriculture Trade and Industry
George-Deen Act	1936	Distributive Education
Public Law 84-896	1956	Health Education
Public Law 85-864	1958	Technical Education
Vocational Education Act	1963	Office Education
Amendments to Vocational Education Act of 1963	1968	All other occupations except those classified as "professions"

Since that time employment opportunities in the professional, semi-professional and technical fields have greatly increased. Present demands in the public service field alone exceed the supply by five to one. Technological advances have created much greater demands for trained personnel in scientific research, development, production and services in all fields of applied science. At least two technicians are required for each engineer or professional scientist; six to ten technicians for each medical doctor or professional researcher in the health fields; and four or five to each biological scientist.

As a result of earlier federal legislation, vocational programs in all states had been organized along occupational or "service" lines. Table 1 shows how each ensuing act has expanded the range of these services, beginning with the Smith-Hughes Act of 1917, which established useful home economics, agriculture, and trade and industrial courses. Distributive education was added by the George-Deen Act of 1936; health education under Public Law 84-896 in 1956; technical education by Public Law 85-864; and office education in 1965 under the Vocational Education Act of 1963. The expansion of each of these fields of study is shown on the following pages.

Agriculture: Vocational agriculture, one of the first "practical training courses" offered in Arizona schools, dates back to the yoke and hand-plow of the late 1800's. As early as 1912 Mr. R. W. Clothier, writing in the *Arizona Journal of Education*, urged state aid for additional agricultural training courses in high school "so that the student's interest in education would revive . . . and instead of leaving school as is now the case he would remain." The following year legislation was passed providing for state support of agriculture in the schools -- both elementary and high school. Figures for the 1914-15 school year show six Arizona schools with agricultural classes and an enrollment of sixty-eight students. In 1915-16 seven high schools were offering agriculture; and in 1917-18 enrollment had increased to 112. This same year, 1918, the University of Tucson established a forty-three acre experimental farm adjoining the campus.

Table 2

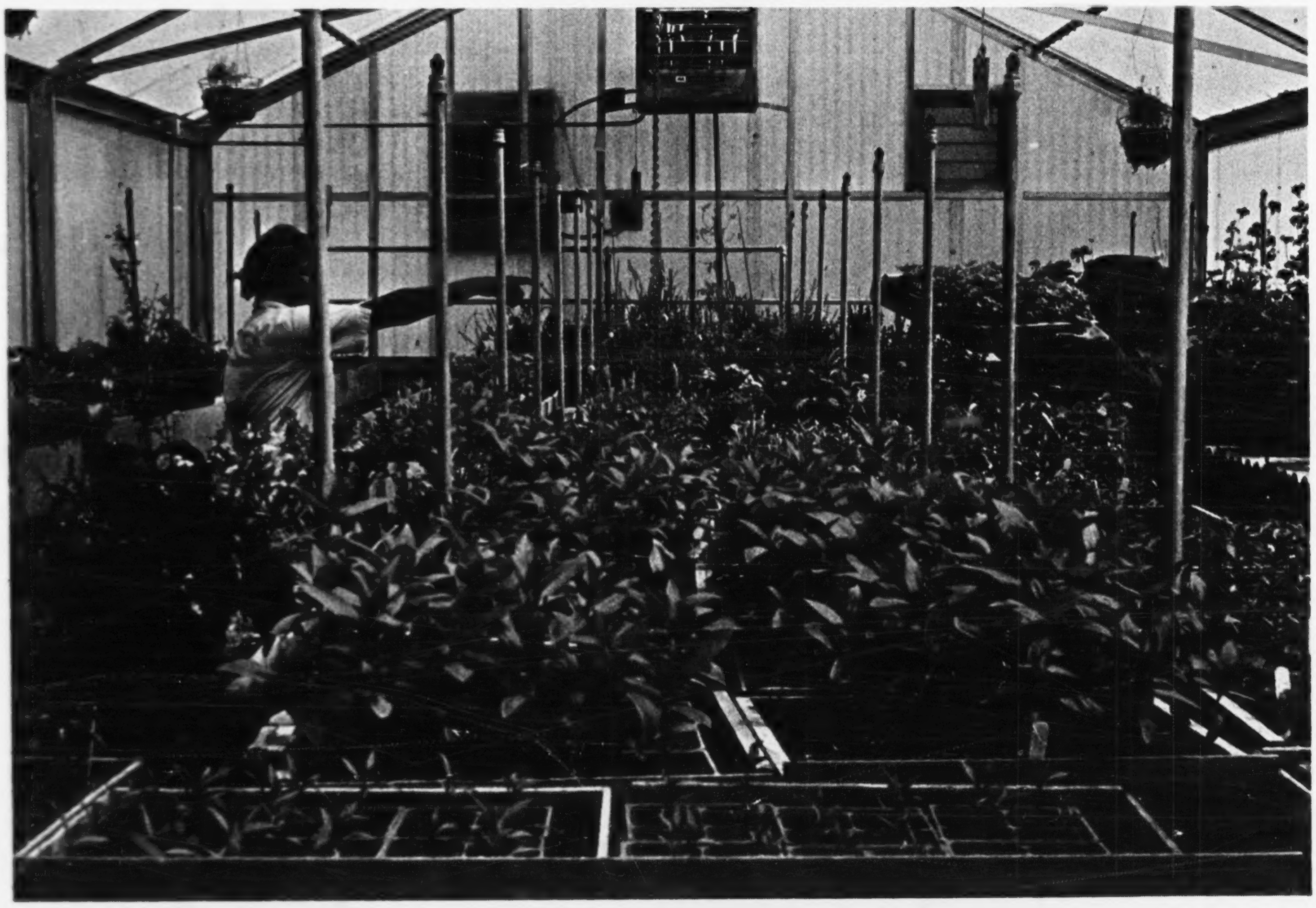
Vocational Agriculture in Arizona

Established:	1921
State Supervisor:	Mr. Carlos Moore
Number of High Schools:	43
High School Enrollment:	2,600
Number of Junior Colleges:	4
Junior College Enrollment:	312
Teacher Education Program:	University of Arizona
Number of Adult Schools:	7
Adult Enrollment:	171
Total Number of Programs:	9

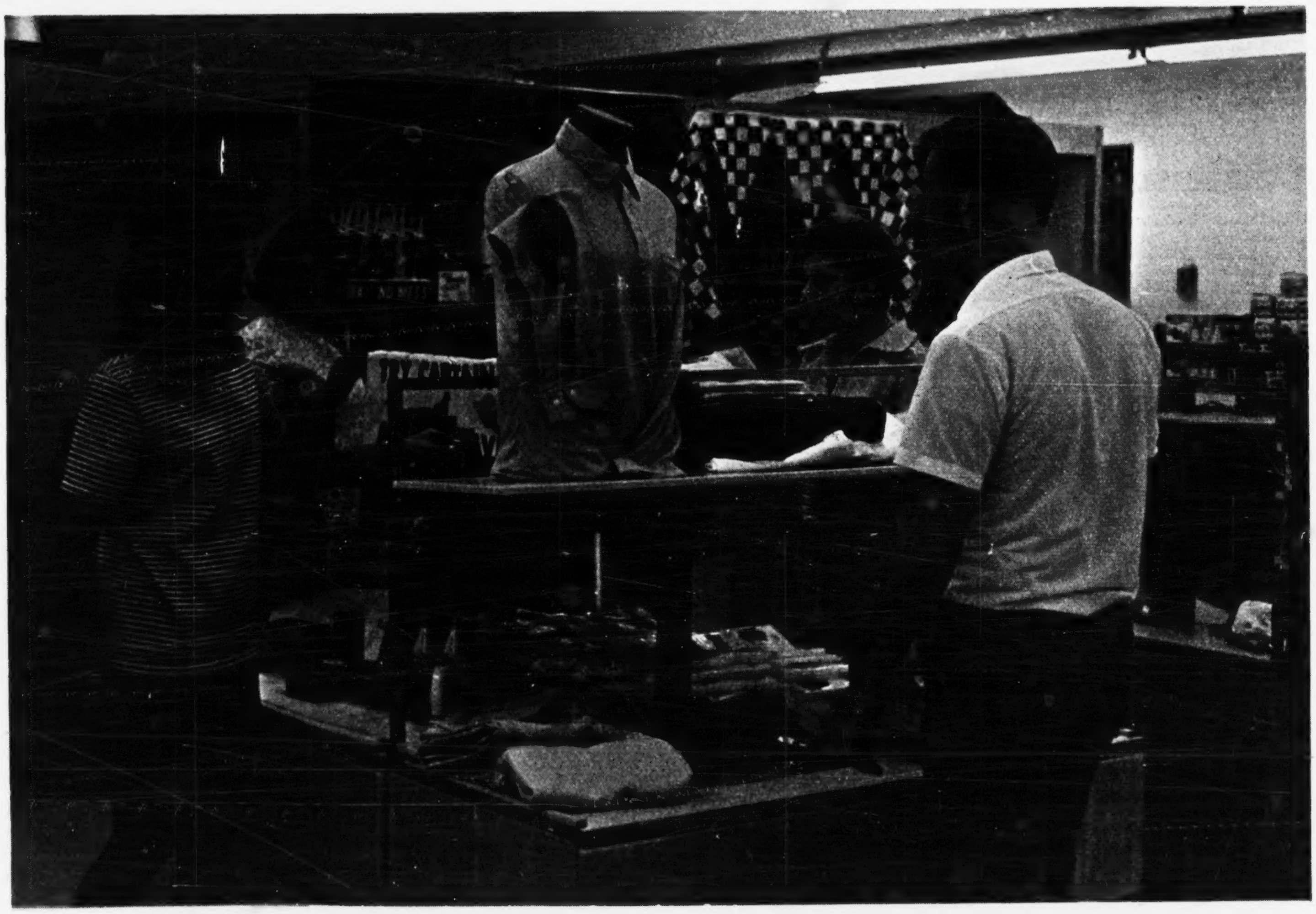
Data supplied by RCU Data Systems Division

With the advent of the first federally supported program in 1921 under the Smith-Hughes Act, and the establishment in 1923 of a State Department of Vocational Education, agricultural education expanded rapidly. The 1922-23 year shows an enrollment of 185 students in fifteen high schools. Farm shop classes were also introduced at this time. By 1923-24 seventeen schools had vocational agricultural classes with an enrollment of 430 -- an increase of 132.4% in one year.

Growth in the last three decades has been more gradual. In 1936 there were twenty-seven high schools and one junior high offering vocational agricultural courses; in 1966 there were thirty-seven schools with programs in operation. While the school increase for these thirty years was only 86%, the increase in enrollment was 282% -- a jump from 732 students to over 2,600. Today there are forty-three high schools, four junior colleges, and seven adult programs offering vocational agriculture with a total enrollment of 3,083. The current figures as indicated in Table 2 reflect a leveling off as Arizona's economy becomes increasingly industrial and agriculture takes advantage of automation.



Horticulture Class, Tucson High School



Tucson High School Distributive Education Class

Distributive Education: The main emphasis in distributive education has been in adult training. However, as can be seen from Table 3, high school and junior college programs are rapidly expanding. In 1958 only three high schools offered a total of six courses in distributive education. Ten years later, thirty-seven high schools had active DE programs. At the same time, enrollment had risen from less than 100 to 2,000. In 1970, forty-eight high schools offer DE classes with an enrollment of 2,611 students. Junior colleges offer post-secondary programs with courses ranging from marketing to management; and adult programs have increased to an enrollment of over 7,200 students. Both Arizona State University and the University of Arizona offer teacher-education programs.

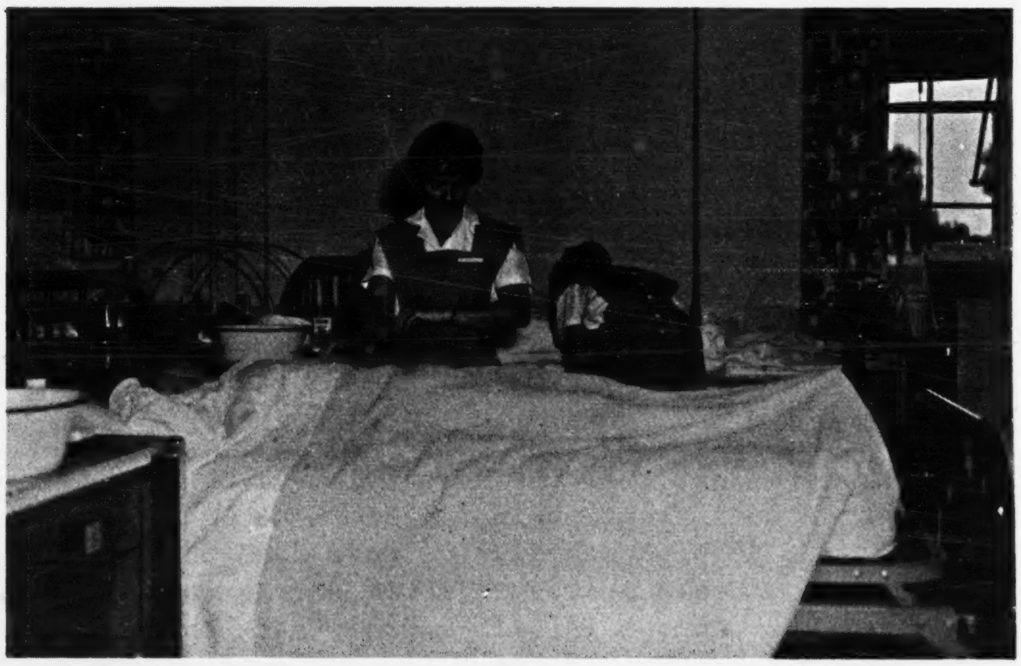
Table 3

Distributive Education in Arizona

Established:	1936
State Supervisor:	Mr. Paul Bennewitz
Number of High Schools:	48
High School Enrollment:	2,611
Number of Junior Colleges:	6
Junior College Enrollment:	747
Teacher Education Programs:	ASU and U of A
Number of Adult Schools:	9
Adult Enrollment:	7,236
Total Number of Programs:	20

Data supplied by RCU Data Systems Division

Health Services Education: The health occupations have been considered a separate service in vocational education only since 1966. Before that they were included in trade and industrial education. Only in recent years have the public schools become very active in training persons for this field, although Phoenix Union High School has had a practical nursing program since 1948. Today there are programs in dental technology, dental hygiene, medical services medical laboratory technology, nursing - associate degree, practical nursing, nurse's aide, surgical technology, inhalation therapy, and X-ray technology.



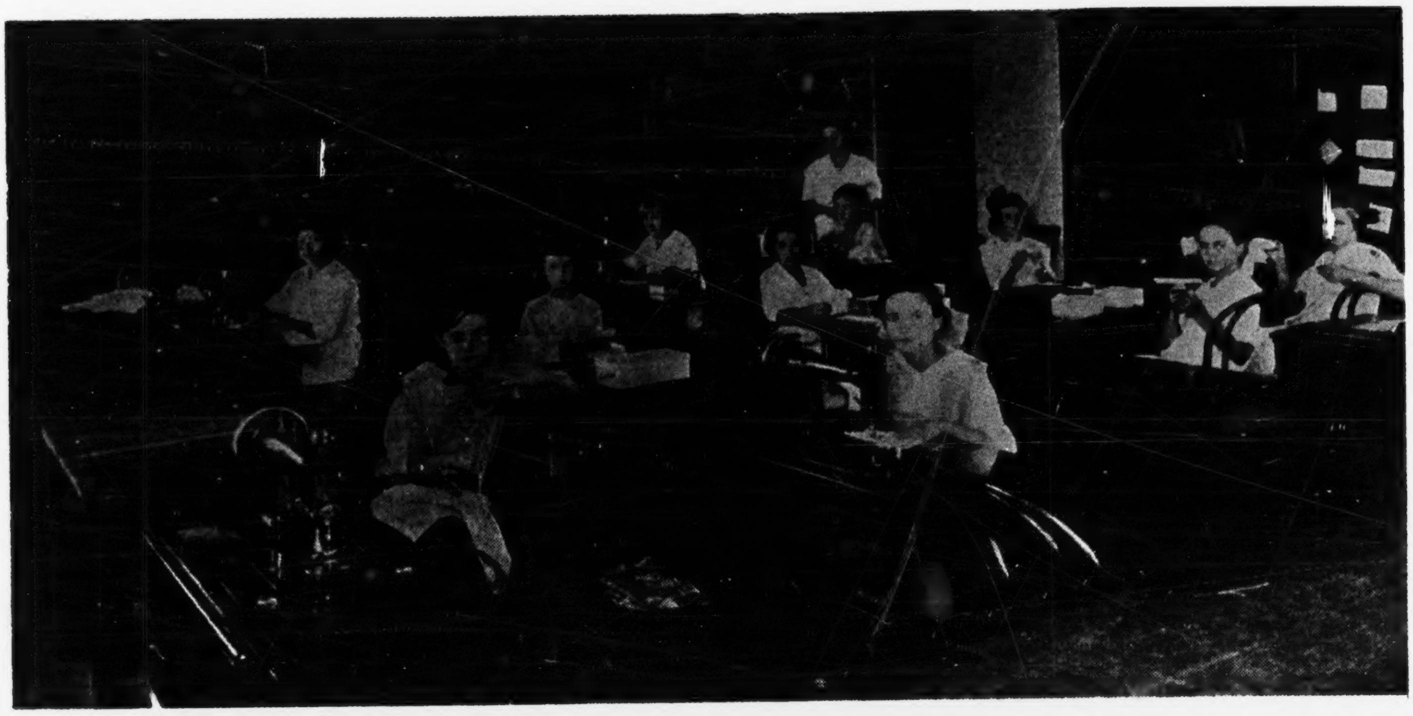
Practical Nursing Class at Phoenix Union High School

Table 4

Health Services Education in Arizona

Established:	1956
State Supervisor:	Mrs. Shirley Mannion
Number of High Schools:	9
High School Enrollment:	119
Number of Junior Colleges:	8
Junior College Enrollment:	1,132
Teacher Education Programs:	Medical & Nursing Sch.
Number of Adult Schools:	11
Adult Enrollment:	784
Total Number of Programs:	12

Data supplied by RCU Data Systems Division



Sewing Class, Monroe High School, Phoenix 1917
Bureau of Education Bulletin, 1917, No. 44,Plate 10

Home Economics: Home training for girls, like agriculture for boys, was one of the first vocational programs in Arizona schools. The school code of 1913 provided state payments to high schools for work done in "domestic science" and stipulated that normal schools must have rooms and equipment for elementary training in this course. In the 1915-16 school year, twenty-one schools carried domestic science programs. By 1918 the title of "home economics" had supplanted "domestic science" and five high schools as well as elementary schools offered programs: Phoenix Union, Tempe, Winslow, Prescott, and Tucson. Total enrollment was 112 students. The decrease in the number of schools between 1916 and 1918 was primarily due to the consolidation of smaller schools. Evening classes were started in home economics in 1918 as were teacher education classes at the University of Arizona in Tucson. By 1919-1920 thirty-three elementary and high schools had home economics classes. Today there are two kinds of programs: "useful" for training in homemaking; and "gainful" on training for employment, with a total enrollment in high schools of 25,402, 287 in junior colleges, and 1,724 in adult classes.

Table 5

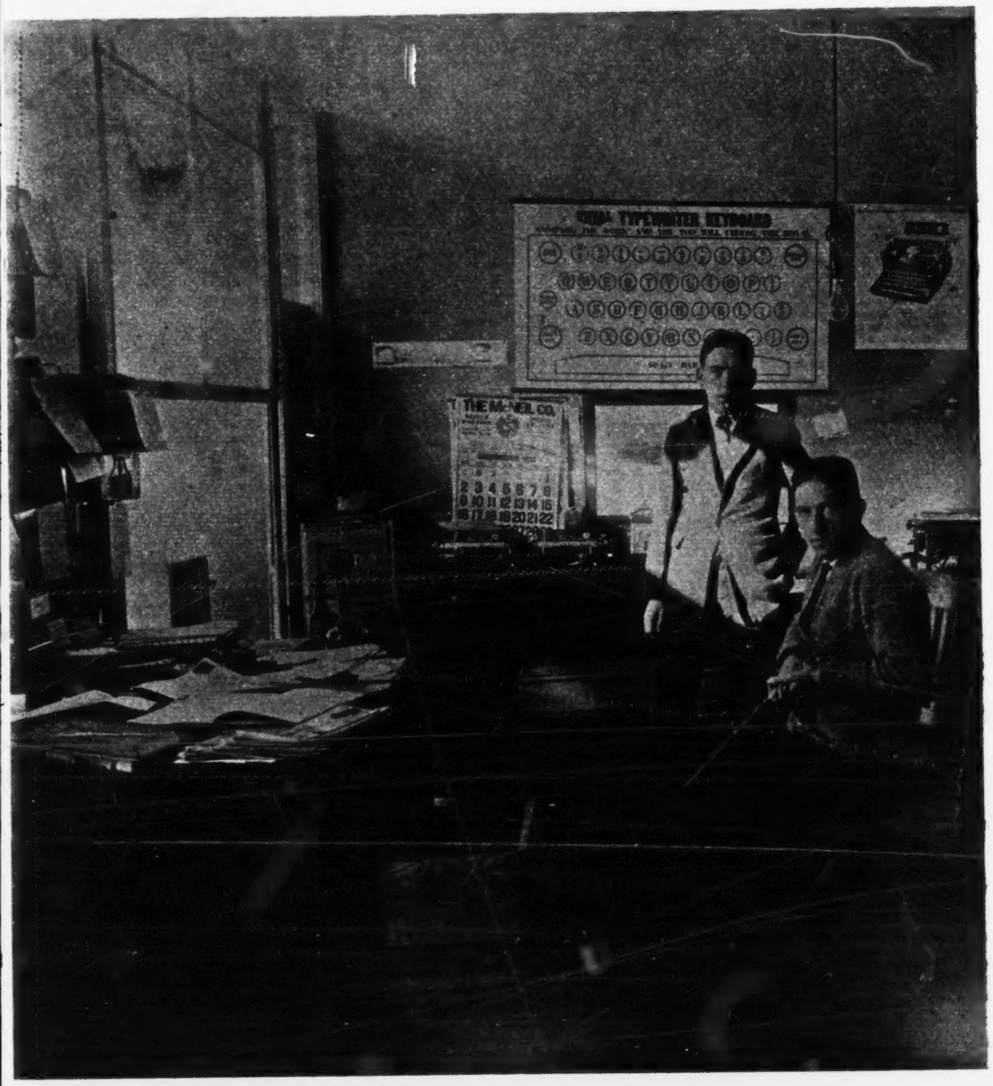
Home Economics in Arizona

Established:	1921
State Supervisor:	Mrs. Clio Reinwald
Number of High Schools:	96
High School Enrollment:	25,402
Number of Junior Colleges:	2
Junior College Enrollment:	287
Number of Adult Schools:	12
Adult Enrollment:	1,724
Teacher Education Programs:	ASU, NAU, and U of A
Total Number of Programs (Gainful):	7
Total Number of Programs (Useful):	9

Data supplied by RCU Data Systems Division

Vocational Home Economics, Tempe High School

Food Service Students, Catalina High School, Tucson



Office Education:

Although preparation for office occupations was not considered vocational education by the federal government until the Vocational Education Act of 1963, there have been training courses under general business programs for more than fifty years. A Bureau of Education Bulletin issued in 1917 shows courses offered in typing, stenography I and II and bookkeeping as part of the curriculum in Arizona schools. One of the programs specifically included in the formation of the Arizona State Department of Vocational Education in 1923 was "to promote and conduct commercial classes." In 1964, when the new federal legislation became effective, three high schools in the state offered vocational office education: North High and South Mountain in Phoenix, and Palo Verde in Tucson.

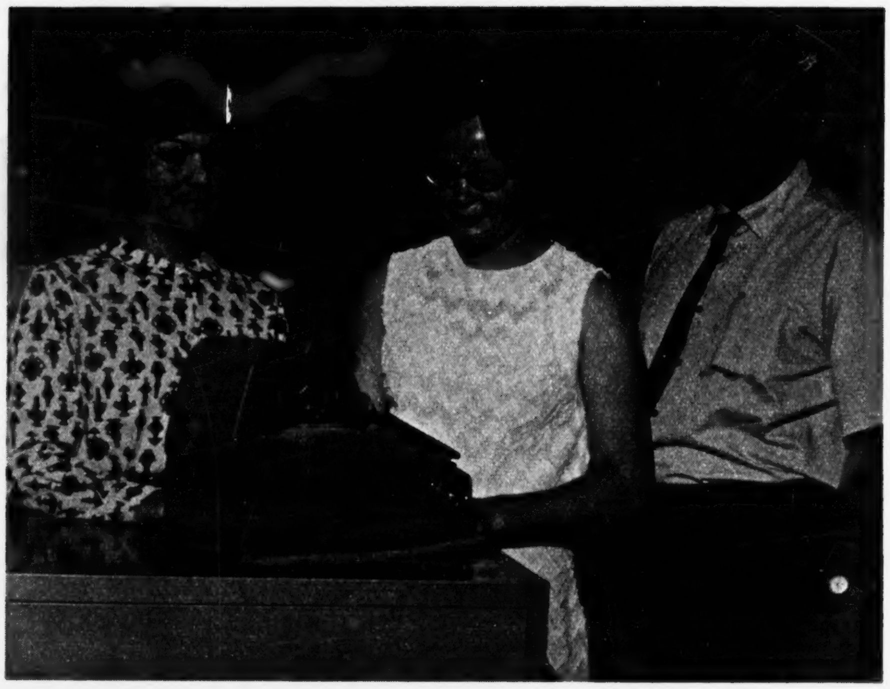
Walsh Bros. Office, Phoenix, 1929

Table 6

Office Education in Arizona

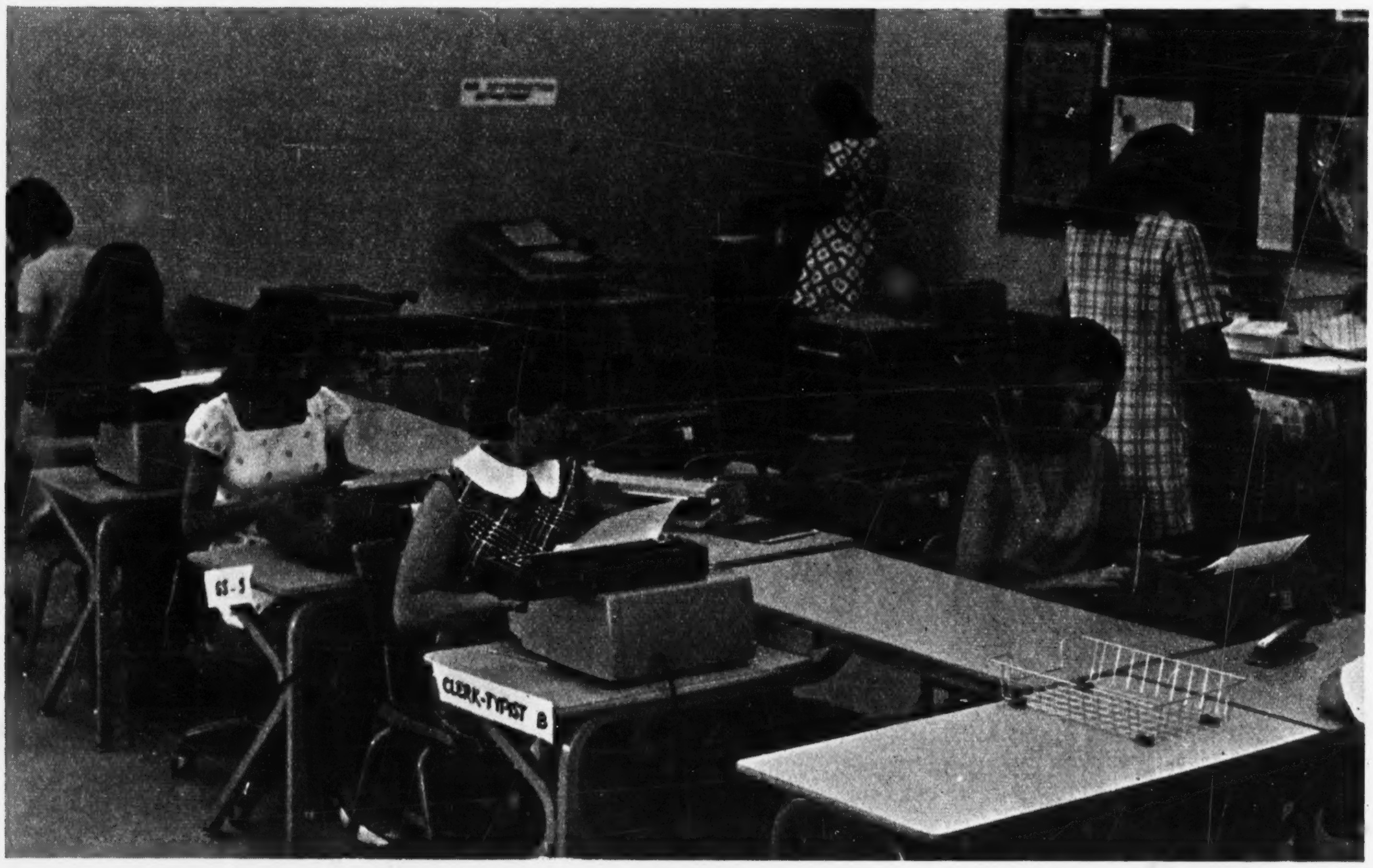
Established:	1964
State Supervisor:	Mr. Paul Bennewitz
Number of High Schools:	94
High School Enrollment:	5;955
Number of Junior Colleges:	9
Junior College Enrollment:	2,144
Number of Adult Schools:	19
Adult Enrollment:	3,515
Teacher Education Programs:	ASU, NAU and U of A
Total Number of Programs:	10

Data supplied by RCU Data Systems Division



Office Education, Sierra Vista High

Rapid growth followed the addition of vocational funds, and one year later, in 1965, there were thirty-nine high schools throughout the state offering office education programs. By 1970 the list included ninety-four high schools, nine junior colleges and nineteen adult schools. In 1969-70 high school enrollment totalled 5,955, junior colleges 2,144, and adult 3,515.



Simulated Office, Palo Verde High, Tucson

Electronic Technology, Mesa Community College

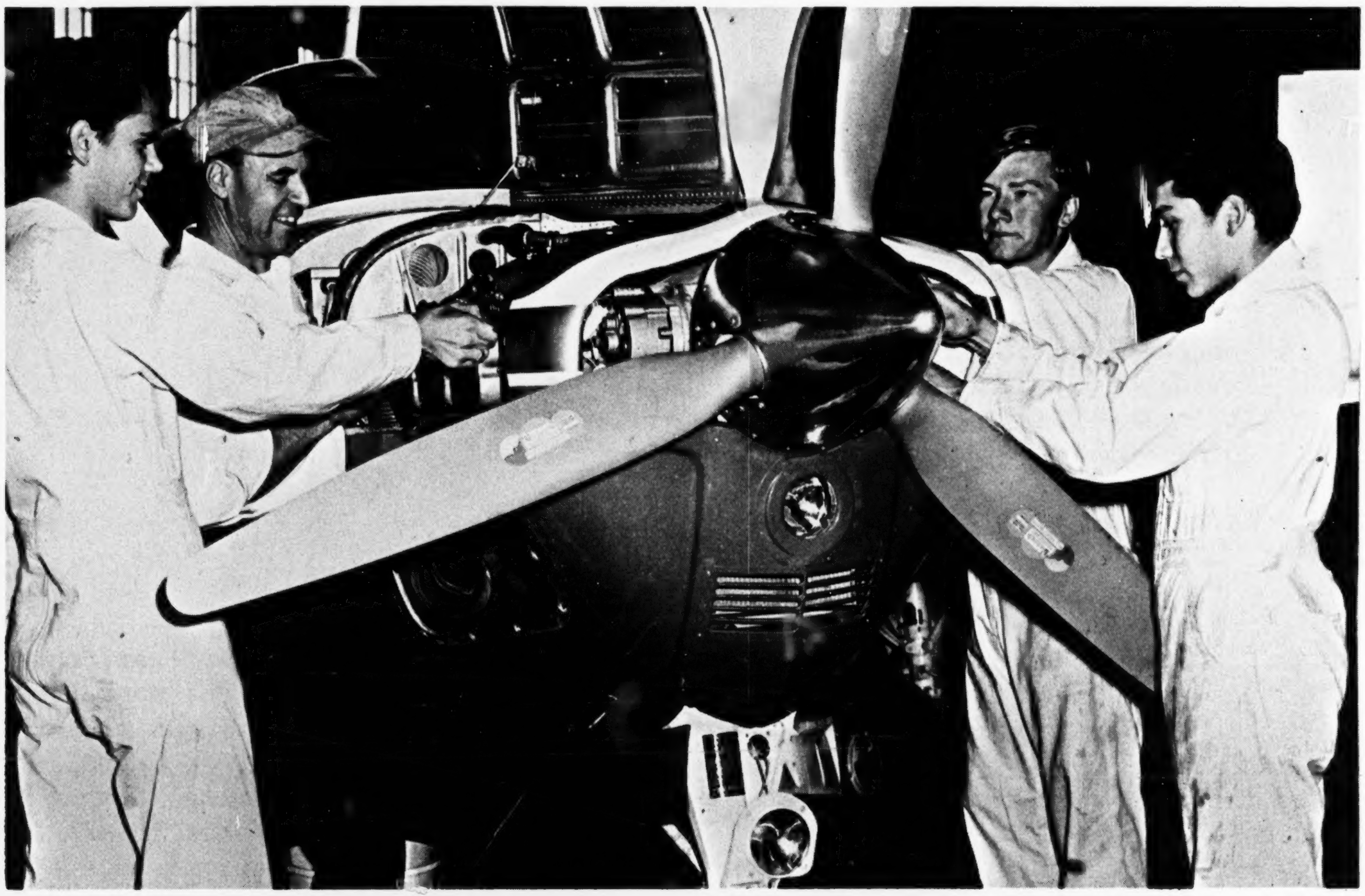
Technical Education: Before 1958 technical education like health was included in trade and industry. Today it is classified as the junior college and adult programs preparing students for careers largely in industry just below the level of professional engineers and scientists. There are no technical education classes in the high schools of Arizona. In 1962 the total program in Arizona consisted of classes at one university, two junior colleges and two adult classes. In 1970 nine junior colleges, Arizona State University and Northern Arizona University had technical programs in addition to ten adult classes. Enrollment in technical education has risen from 1,763 in 1962 to 7,590 in 1970. Teacher education classes are offered at both Arizona State University and Northern Arizona University.

Table 7

Technical Education in Arizona

Established:	1958
State Supervisor:	Mr. Dean Frey
Number of Junior Colleges:	9
Junior College Enrollment:	3,247
Number of Adult Schools:	10
Adult Enrollment:	4,343
Teacher Education Programs:	ASU and NAU
Total Number of Programs:	16

Data supplied by RCU Data Systems Division



Aviation Technology, Cochise College, Douglas
Cochise is reported to be the only junior college in the United States with runways on campus.

Computer Technology, Maricopa Technical College

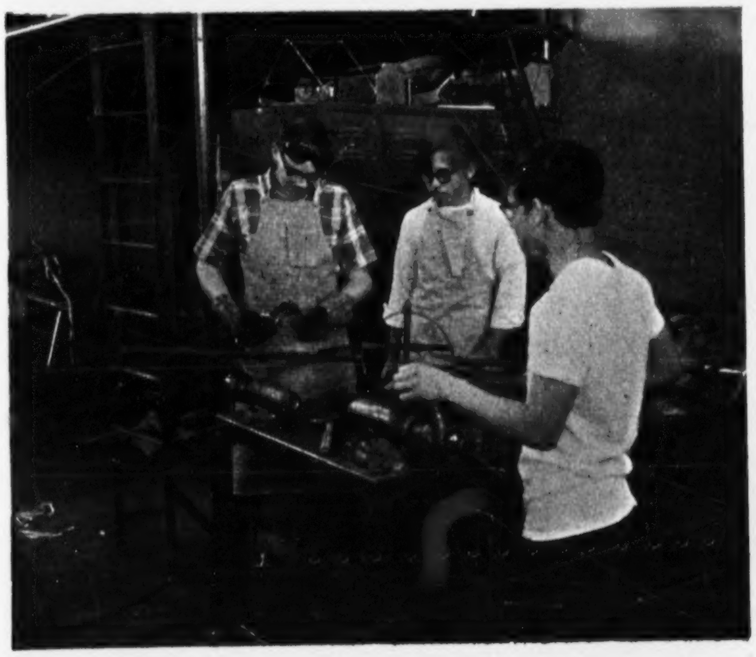
Table 8

Trade and Industry Education in Arizona

Established:	1921
State Supervisor:	Mr. Marvin Seglem
Number of High Schools:	51
High School Enrollment:	2,875
Number of Junior Colleges:	9
Junior College Enrollment:	1,376
Teacher Education Programs:	NAU
Number of Adult Schools:	23
Adult Enrollment:	7,638
Total Number of Programs:	72

Data supplied by RCU Data Systems Division

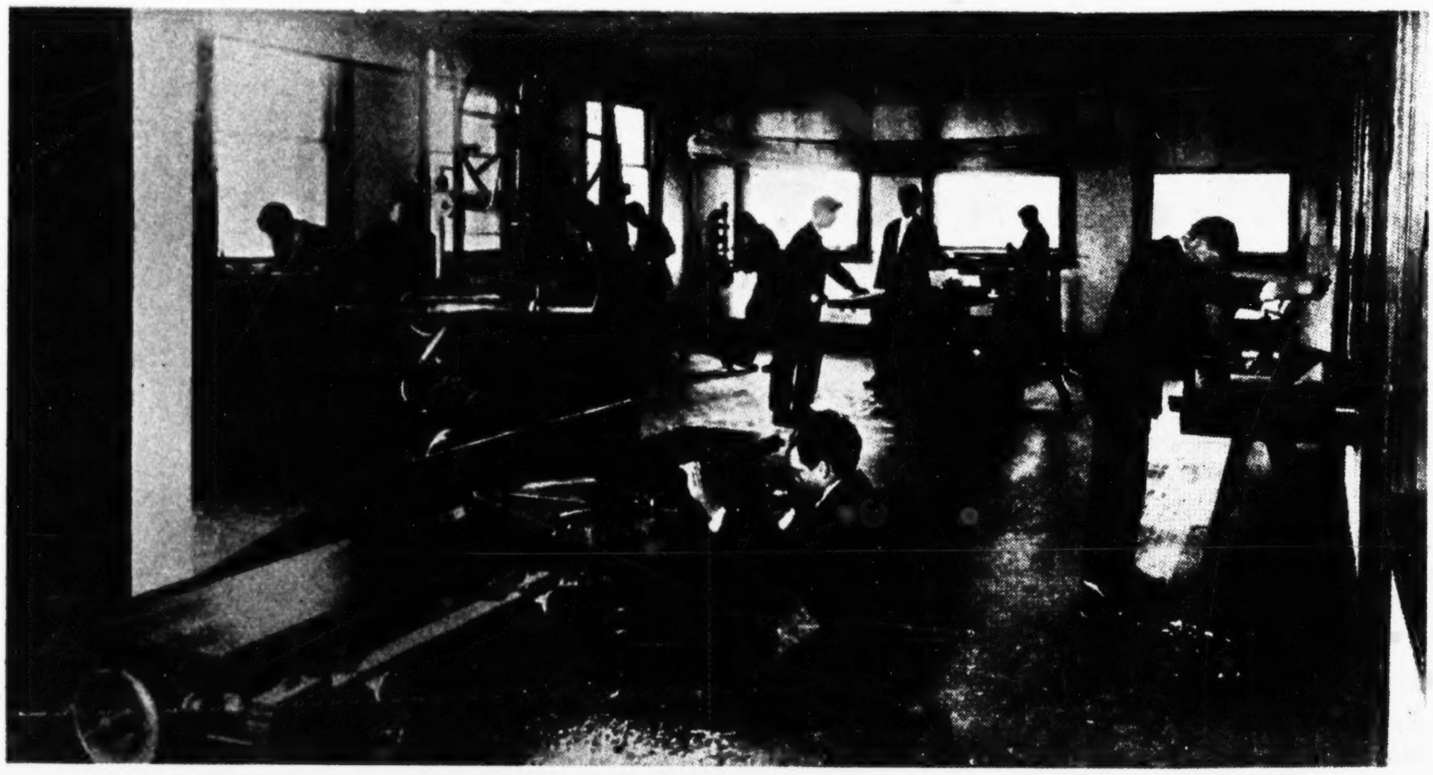
Trade and Industry: Trade and industry as a vocational classification was established in Arizona in 1921 under the Smith-Hughes Act. Many of the manual arts classes authorized by chapter twenty of the Arizona Acts of 1905, such as mining and construction, were of course vocationally oriented. A 1917 list of manual arts classes included wood-working, forge shop, machine shop, and sheet metal work. By 1918 Bisbee, Miami, Winslow, Globe, and Phoenix schools offered classes in electrical theory, machine shop, auto construction, telegraphy, wireless operation and drafting. In 1923 the first cooperative work-study programs in trade and industry were set up with Miami Copper Company, Phelps-Dodge, and Inspiration Copper Company. While enrollment figures are not available for 1923, a report by the Department of Vocational Education in 1924 states that the increase in trade and industry enrollment from 1922-23 to 1923-24 was over 500%. Part-time apprenticeship, trade extension, and trade preparatory classes for auto mechanics, carpenters, mine workers, maids, show-card writers, electricians, railroad workers, and sales people were established primarily for Spanish speaking people and early school leavers. It is noted that placement of these students was excellent.



Machine Shop, Yuma High School

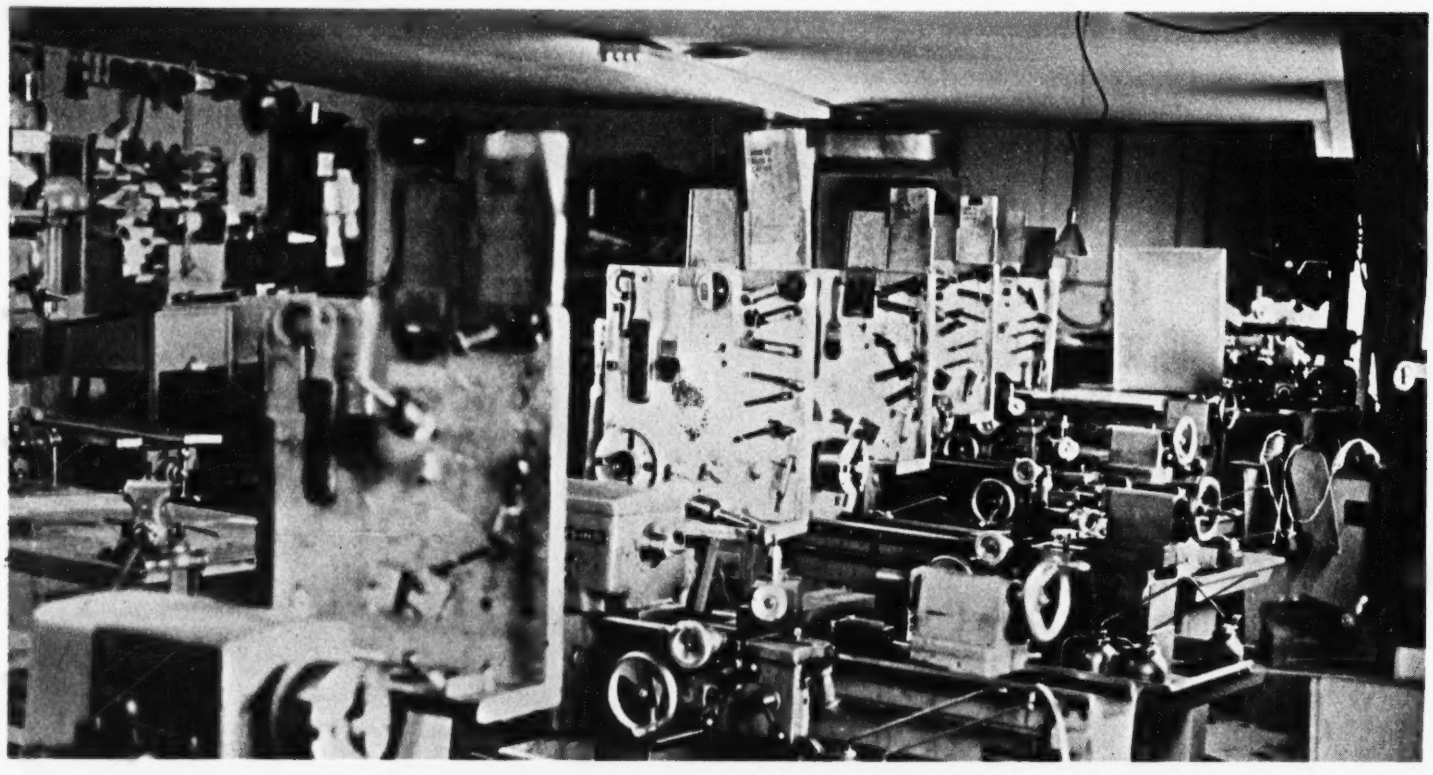
Auto Mechanics, Kofa High School, Yuma

By the end of World War II the need and methods of training skilled trade and industrial workers were well established. By 1950, 16% of all Arizona high schools offered some trade and industry courses. In 1963 seven high schools had comprehensive programs; by 1970 fifty-one high schools carried programs. This represents 43% of the high schools of Arizona. The present enrollments in high school, junior college, and adult totals 11,889.



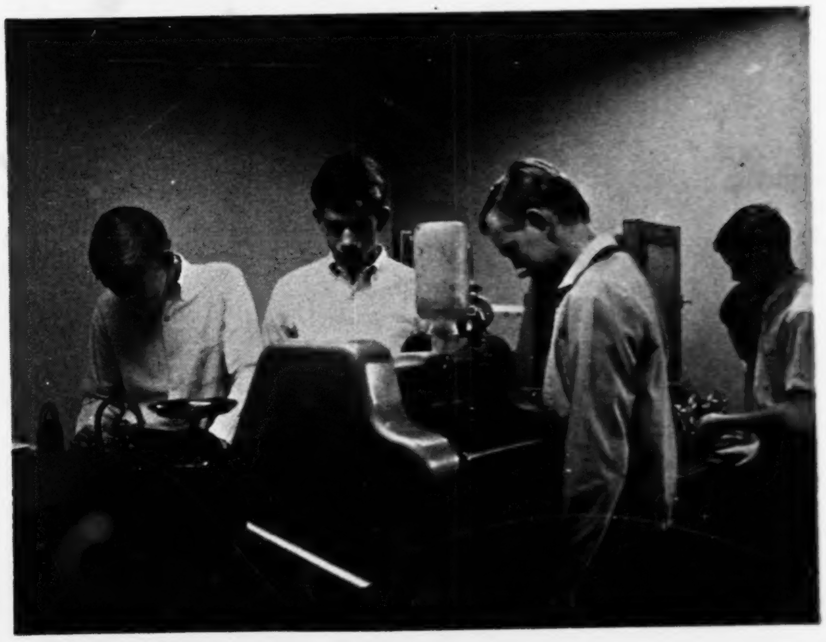
Prescott High School, 1917

A half century of machine shop in Arizona high schools.



Window Rock High School, 1970

Industrial Arts: Although vocational trade and industry classes evolved out of what was called manual arts at the beginning of the century, a very substantial program remained within the general curriculum of both elementary and secondary schools. The name has been changed to industrial arts, and it is offered primarily for the development of skills used in everyday life as well as for pre-vocational preparation. Both trade and industry courses and industrial arts courses may utilize the same tools and equipment, but as a general rule industrial arts comes earlier in the curriculum and is not intended to prepare students for direct entry into skilled employment. With the federal legislation of 1968, some of the former separation that had developed between vocational programs and industrial arts has come to an end, and industrial arts is now expanding its role in pre-vocational education. Individual enrollment figures are not available, but are estimated in excess of 84,000 in Arizona during the past year.



Industrial Arts Class, West High School, Phoenix

Table 9

Industrial Arts in Arizona

Established	1905
State Supervisor:	Mr. William Anderson
Number of High Schools:	114
High School Enrollment:	50,835
Number of Elementary & Middle Schools:	169
Elementary & Middle School Enrollment:	33,165
Teacher Education Programs:	NAU, ASU

Data supplied by State Department of Vocational Education

Preparing for the 1970's

Several states as well as the federal government made a reappraisal of their career education programs in the 1960's and Arizona was one of these. Governor Paul Fannin appointed a twenty-five member blue ribbon committee in 1961 headed by State Legislator Marshall Humphrey representing all major education and economic groups. The committee spent a year putting together a picture of what was being done and what was needed. Its report became the basis of new legislation the next year, and Arizona emerged as one of the leading States in supporting career education. Some of the features in the Federal Act of 1963 were anticipated in the 1962 Arizona legislation.

The need for a greatly expanded program in Arizona as elsewhere was becoming critical. Total non-agricultural employment in the State increased from 1959 to 1964 by 30%. Two hundred eighty new manufacturing companies were established in the same period with 5,500 employees. The electronics industry alone more than doubled its employment from 7,200 to 15,100; and Arizona had become the fastest growing electronics area in the West. The demand for skilled personnel far outstripped employment opportunities for youth or adults who lacked specialized training. More students were going to college than ever before, but the number dropping out or looking for work after high school was also increasing. Figures are not available for the state, but by July, 1968 the unemployment rate nationally for the fourteen to nineteen age group was 14.6% compared to 3.7% for the rest of the population.

Under these circumstances -- repeated in varying patterns throughout the nation -- Congress gave the Vocational Education Act of 1963 more than a passing review five years later. A prestigious National Advisory Council carried out a thorough evaluation and reported its recommendations to the U.S. Commissioner and to Congress. Several bills were introduced in the House and Senate, and months of

Negative Assembly Class, Maricopa Technical College, Phoenix public hearings were held. The bill that emerged from all this was as far-reaching in its potential impact as the 1963 Act had been. Public support was overwhelming, and it became one of the few major pieces of national legislation ever to pass both Houses of Congress by unanimous votes.

Table 10 lists five basic concepts which went into the Vocational Education Amendments of 1968 as they appeared in the House Report, each a radical departure from fifty years of tradition in federally supported programs. The House Report further endorsed the Advisory Council's recommendations that career education begin in the elementary schools, continue through junior high and high school, and offer a choice at that point of skilled employment or continuing a post-secondary education. Elementary schools, according to this plan, should provide a "realistic picture of the world of work." Junior high school students "should learn about economic and industrial systems by which goods and services are produced and distributed." Occupational preparation should become more specific in high school, "though not limited to only one vocation." High school training "should be built around significant families of occupations or industries which promise expanding opportunities."

It was the blueprint of a comprehensive educational system from the elementary grades through post high school in which academic courses and career preparation could be inseparably joined. Major provisions of the 1968 Amendments are outlined in Table 11. Essentially, this legislation introduced a new frame of reference for career preparation in the schools. Instead of supporting occupations or service areas, emphasis was shifted to people being served. The once clearly defined occupational services were supplemented by support services for groups of people. Special emphasis was directed in the 1968 Amendments to serving the disadvantaged, handicapped, consumers, and homemaking groups; and to career guidance, exemplary programs, work study and more cooperative work experience programs. In effect, the 1968 legislation brought within the scope of career education in the schools all occupations

CHARGE CIRCUIT

Automotive Class, Window Rock High School

Table 10

Basic Concepts in the Vocational Education Amendments of 1968

1. Any dichotomy between academic and vocational education is outmoded.

2. Developing attitudes, basic educational skills, and skills and habits appropriate for the world of work are as important as skill training.

3. Pre-vocational orientation is necessary to introduce pupils to the world of work and provide motivation.

4. Meaningful career choices are a legitimate concern of vocational education.

5. Vocational programs should be developmental, not terminal, providing maximum options for students to go on to college, pursue post-secondary vocational and technical training or find employment.

-- *Report on Vocational Education Amendments of 1968,*
Committee on Education and Labor,
House of Representatives, July 8, 1968

up to the professional level. In Arizona as in other States the effect was a powerful incentive for career education to adapt to the changes which had already taken place and continue to occur in manpower needs. These needs have become so numerous and so complex with the rapid expansion of technology in all fields since World War II that the entire structure of career education in the schools is being changed.

Business Machine Class, Phoenix Union High School

Table 11

MAJOR PROVISIONS OF AMENDMENTS OF 1968

1. Authorization for substantially increased grants to the States for support of on going vocational education.
2. A definition of vocational education as "a program to prepare individuals for gainful employment as semi-skilled or skilled workers or technicians or subprofessionals in recognized occupations . . . but excluding any program to prepare individuals for employment in occupations . . . generally considered professional or which requires a baccalaureate or higher degree."
3. A National Advisory Council on Vocational Education consisting of twenty-one members appointed by the President for terms of three years with a paid full-time technical staff. The purpose of this committee and staff is for quality control and evaluation studies.
4. A State Advisory Council in each State appointed in most cases by the Governor with a paid full-time technical staff. The purpose of these committees is for quality control, evaluation studies and as ancillary agencies of the National Advisory Council.
5. Support of research, experimental, development and pilot programs and activities in vocational education and the dissemination of the resulting information.
6. In addition to financial support for on going programs additional support for the following innovative programs:
    a) Exemplary programs—four years. These programs are visualized as activities which would be creative in motivating and training youth and adults who are not now served in an effective manner.
    b) Cooperative vocational education—four years. Cooperative work-study programs are encouraged to prepare youth for employment. School and work are integrated, supervised and related in these programs.
    c) Work-study programs—two years. These programs assist economically needy students to stay in school on a full-time schedule. The work activity is not related or integrated with the school programs.
    d) Demonstration residential schools—four years. These are schools for youth who must have a residence away from home either because of geographic conditions or because of sociological conditions within the home.
    e) Consumer and homemaker education—three years. These programs which develop more effective homemakers, wage earners or both are primarily for youth with social and cultural conditions which justify special education.
    f) Curriculum development—two years. This program was designed to encourage and support the development of new curricular materials for vocational and technical education.
    g) Training and development program for vocational education personnel—two years. This is an amendment to the *Higher Education Act of 1965*. Its purpose is "to provide opportunities for experienced vocational educators to spend full-time in advanced study of vocational education for a period not to exceed three years in length."
7. The repeal of the George-Barden Act of 1946 and many of its ancillary acts which simplify administration and financial reporting by the States under one Act.
8. Changes that stop short of repealing the Smith-Hughes Act but state that "funds appropriated by . . . Smith-Hughes Act . . . shall be considered as funds appropriated pursuant to . . . this Act." This wording eliminates separate accounting.

Summary by J. Chester Swanson
University of California

CHAPTER II

CAREER EDUCATION IN ARIZONA SCHOOLS TODAY

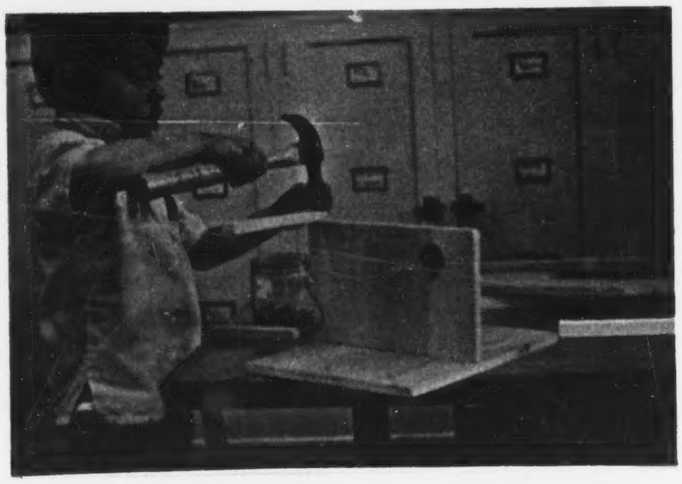
> *We've oversold the public on the idea of a general education, the idea that a high school education or a junior college education or even a liberal arts college prepares a person for anything. A liberal education is a wonderful thing, but if it is not somehow, somewhere related to a saleable, marketable skill, we haven't produced the kind of people power we need.*
>
> -- *Dr. Howard C. Seymour*
> *Superintendent, Phoenix Union High School*

Most boys in Arizona schools receive at least one course in industrial arts before they reach high school, which may include several subjects such as graphic arts, metalwork, power mechanics, and woodwork. Most girls take a course in home economics consisting primarily of cooking and sewing. These are not the intensive programs which began in the fifth grade when Arizona was a Territory, and which could produce accomplished craftsmen and seamstresses by the age of fourteen. But for a great many boys and girls, these and other general education courses are where they learn most of what they know about the world of work. If building a footstool or making a dress seems somewhat inadequate for teenagers, who in four years or less will be applying for full time jobs, it must also be remembered that for many of them there are few opportunities today even at home to add much to this.

For others -- in growing numbers each year -- opportunities for skill training in a variety of careers are being provided in high schools and junior colleges. Career education in the schools, as Dr. Seymour suggests, should be the objective of many more of today's students. Career education, especially in an adequate range of individual choices, is not even available to many students. Nevertheless, the opportunities for an education with job-entry skill training in the schools, and the numbers of students taking advantage of these opportunities, are increasing significantly through state and federal programs initiated during the past decade.

Elementary Grades

The world of work is given visibility in the elementary grades in a variety of subject areas and levels. While home economics and industrial arts usually provide this visibility, other subjects such as the social studies and language arts are rich in potential for career orientation. Many teachers in the early elementary grades use industrial arts and home economics related activities to reinforce learning in all curricular areas. Through these activities, boys and girls learn how different kinds of workers contribute to society's needs.



First Grade, Ott School, Phoenix

Introduction to the world of work at an early age.

In directing attention to human needs for food, clothing, shelter, power, transportation, and communication, teachers often use tool-material activities to illustrate how man modifies the raw materials of his environment to meet these needs. The contributions of famous inventors, the sociological impact of industrial development, the practical applications of mathematical and scientific principles, the multitude of occupations created by mass production -- all are examples of basic concepts related to the world of work that are learned in the early elementary grades.

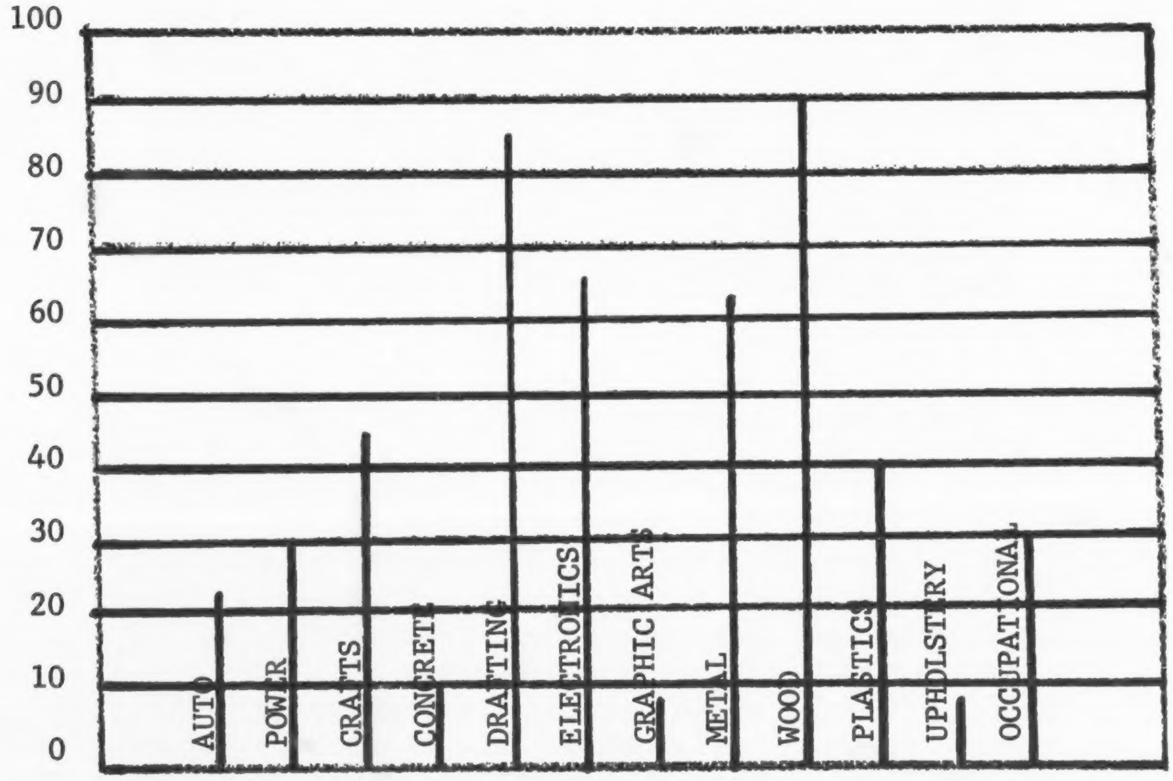
Intermediate Grades

Since school organizational patterns vary among districts, the definition of "intermediate grades" is not uniform. The reference here is to the upper elementary grades generally associated with the middle school and junior high school. Career orientation is becoming a major thrust in the intermediate grades throughout the country. Pilot programs having a variety of designs are described in current literature. Most of them utilize an inter-disciplinary approach in orienting boys and girls to broad occupational fields. What is learned in mathematics and science, for example, is related to how it is used in many different kinds of occupations. The primary goal of these programs is to give relevance to learning as well as visibility to the world of work.

Industrial Arts, Casa Grande Junior High

Table 12

Percentage of schools Offering General Industrial Arts
Grades 6 - 12



Data supplied by State Department of Vocational Education

Intermediate level industrial arts programs provide the first laboratory oriented learning experiences about industry and technology under the guidance of a teacher-specialist. Goals of industrial arts at this level are to provide exploration into as many major areas of industry as possible, to study industrial occupations, and to help each student gain insight into his interest and abilities that relate to industry and technology. One hundred seventy-eight schools in Arizona offer intermediate industrial arts and most of these include at least four units or subjects. Variations result from differences in scheduling, local requirements and financial resources. The great majority of schools require at least one year of intermediate level industrial arts for boys.

Industrial arts courses are offered both in the intermediate grades and in high school, with an estimated enrollment of 84,310 students in Arizona during the 1968-69 school year. Data received from 55% of the 283 schools offering industrial arts in either the middle grades or high school in the spring of 1969 revealed a number of interesting if not entirely related facts. For example, 32% of the total industrial arts enrollment is in the intermediate level (grades six-seven-eight). Twenty-four percent of the courses at all levels are offered on a one-semester basis. Three and one-half percent of the students are girls. Forty-seven percent of all high school students in Arizona took industrial arts that year, compared to only 8% of the elementary students. This is explained by the great number of elementary students in grades one through six who do not take industrial arts as a separate subject.

Furniture Arranging, Monroe School, Phoenix

For girls, the principal introduction to career education in the intermediate grades is through home economics. A few Arizona schools still offer home economics in grades five and six, as was customary a half century ago, but this is the exception today. Most schools have from two to four semesters in grades seven and eight. In many instances, home economics is one area of instruction in a block which includes such subjects as art, industrial arts, music, and health. A majority of schools require that girls enroll in one or two semesters of home economics during grades seven and eight.

Units of study typically included in home economics at the intermediate level are: selection and preparation of food for health; selection, care, and construction of clothing; grooming and personal appearance; personal development in the early teens; interpersonal relations; child development; and participation in care of the home. The traditional emphasis in these units has been primarily on the teenager as a developing person and family member rather than as an employable person in the world of work. One exception is the unit in child development which has often been oriented toward the teenage occupation of caring for children and which has dealt with the development of skills and attitudes necessary for responsible, capable baby-sitters.

Child Development, Herrera School, Phoenix

Currently, an increasing proportion of schools are including, as part of the home economics program in grades seven and eight, blocks of study which explore occupations related to home economics and consumer knowledge. There is an increasing effort to have students relate what they learn in home economics to future employment as well as effectiveness in the family and community.

Consumer Education, Herrera School, Phoenix

Secondary Schools

In 1966, Mrs. Sarah Folsom, the State Superintendent of Public Instruction, identified one of Arizona's most basic needs in secondary education with this statement:

> In Arizona eighty-three percent of the working force are employed in occupations requiring vocational or technical education, yet only twenty-one percent of Arizona high school students are enrolled in courses developing basic occupational skills.

Although the problem still exists, these percentages are changing. Out of 119 high schools in Arizona, 107 now offer career education programs. Only twelve offer no career courses other than useful home economics. Of the 107 schools providing career education, forty-three offer agriculture; twelve have courses in gainful home economics; ninety-four have office education; forty-eight have distributive education; fifty-one have trade and industrial classes; and nine offer health occupations. Eighty-five schools in the state provide three or more different career programs. Table 13 shows the schools by county that offer career preparation and the program available. Table 14 lists the schools with no career programs.

Distributive Education, Tucson High School

Table 13

Secondary Schools Offering Vocational Education 1969-70

County	School	Programs Offered
Apache	Chinle Teaching H.S.	Agriculture, Office Education
	Round Valley H.S.	Office Education
	Sanders H.S.	Office Education
	St. Johns H.S.	Office Education, Trade & Industry
	Window Rock H.S.	Office Education, Trade & Industry
Cochise	Benson H.S.	Agri., Dist. Ed., Trade & Industry
	Bisbee H.S.	Office Ed., Dist. Ed., Trade & Industry
	Bowie H.S.	Agriculture, Home Economics
	Buena H.S.	Office Ed., Dist. Ed., Trade & Industry
	Douglas H.S.	Agri., Dist. Ed., Home Ec., Off. Ed., Trade & Ind.
	St. David H.S.	Agriculture
	San Simon H.S.	Agriculture
	Tombstone H.S.	Dist. Ed., Home Ec., Office Education
	Valley Union H.S.	Agriculture
	Wilcox H.S.	Agriculture, Home Ec., Office Education
Coconino	Coconino H.S.	Dist. Ed., Health, Home Ec., Off. Ed., Trade & Ind.
	Flagstaff H.S.	Dist. Ed., Health, Off. Ed., Trade & Industry
	Fredonia H.S.	Office Education
	Grand Canyon H.S.	Office Education
	Page Accomodation H.S.	Office Education
	Tuba City H.S.	Office Education
	Williams H.S.	Office Education
Gila	Globe H.S.	Dist. Ed., Off. Ed., Trade & Industry
	Hayden H.S.	Office Education, Trade & Industry
	Miami H.S.	Office Education, Trade & Industry
Graham	Ft.Thomas H.S.	Agriculture, Trade & Industry
	Pima H.S.	Trade & Industry
	Safford H.S.	Agriculture, Dist. Ed., Office Education
	Thatcher H.S.	Trade & Industry
Greenlee	Duncan H.S.	Agriculture
Maricopa	Agua Fria H.S.	Agriculture, Office Ed., Trade & Industry
	Alhambra H.S.	Dist. Ed., Office Education
	Arcadia H.S.	Dist. Ed., Office Education
	Buckeye H.S.	Agriculture, Office Education
	Camelback H.S.	Dist. Ed., Office Education
	Carl Hayden H.S.	Dist. Ed., Office Ed., Trade & Industry
	Central H.S.	Dist. Ed., Office Education
	Chandler H.S.	Agriculture, Dist. Ed., Office Education
	Coronado H.S.	Dist. Ed., Office Education
	Cortez H.S.	Office Education
	Dysart H.S.	Agri., Home Ec., Off. Ed., Trade & Industry
	East H.S.	Dist. Ed., Off. Ed., Trade & Industry
	Gila Bend H.S.	Office Education
	Gilbert H.S.	Agriculture, Office Education
	Glendale H.S.	Agri., Dist. Ed., Off. Ed., Trade & Industry
	Maryvale H.S.	Dist. Ed., Office Education
	McClintock H.S.	Dist. Ed., Office Education
	Mesa H.S.	Agri., Dist. Ed., Home Ec., Off. Ed., Trade & Ind.
	Moon Valley H.S.	Office Education
	North H.S.	Dist. Ed., Office Education
	Paradise Valley H.S.	Office Education, Distributive Education
	Peoria H.S.	Agri., Home Ec., Off. Ed., Trade & Industry
	Phoenix Union H.S.	Dist. Ed., Health, Home Ec., Off. Ed., Trade & Ind.
	Saguaro H.S.	Distributive Education

Table 13 (cont'd)

County	School	Programs Offered
Maricopa (cont'd)	Scottsdale H.S.	Office Education, Trade & Industry
	South Mountain H.S.	Dist. Ed., Office Education
	Sunnyslope H.S.	Dist. Ed., Off. Ed., Trade & Industry
	Tempe H.S.	Agriculture, Office Education
	Tolleson H.S.	Agri., Off. Ed., Trade & Industry
	Washington H.S.	Agri., Dist. Ed., Off. Ed., Trade & Industry
	West H.S.	Dist. Ed., Off. Ed., Trade & Industry
	Westwood H.S.	Agri., Dist. Ed., Trade & Industry
	Wickenburg H.S.	Office Education, Trade & Industry
Mohave	Kingman H.S.	Dist. Ed., Off. Ed., Trade & Industry
	Lake Havasu H.S.	Office Education
	Mohave Union H.S.	Office Education
Navajo	Alchesay H.S.	Agriculture, Office Education
	Holbrook H.S.	Dist. Ed., Office Education
	Monument Valley H.S.	Agriculture, Office Education
	Blue Ridge H.S.	Office Education
	Snowflake H.S.	Agri., Dist. Ed., Off. Ed., Trade & Industry
	Winslow H.S.	Dist. Ed., Off. Ed., Trade & Industry
Pima	Amphitheater	Agri., Dist. Ed., Off. Ed., Trade & Industry
	Canyon Del Oro H.S.	Office Education
	Catalina H.S.	Dist. Ed., Office Education
	Cholla H.S.	Dist. Ed., Office Education
	Flowing Wells H.S.	Office Education, Trade & Industry
	Indian Oasis H.S.	Agriculture, Office Education
	Marana H.S.	Agriculture, Office Education
	Palo Verde H.S.	Dist. Ed., Office Education
	Pueblo H.S.	Dist. Ed., Health, Home Ec., Off. Ed., Trade & Ind.
	Rincon H.S.	Dist. Ed., Office Education
	Sahuarita H.S.	Office Education, Trade & Industry
	Sahuaro H.S.	Dist. Ed., Home Ec., Trade & Industry
	Santa Rita H.S.	Dist. Ed., Office Education
	Sunnyside H.S.	Dist. Ed., Off. Ed., Trade & Industry
	Tucson H.S.	Agri., Dist. Ed., Health, Home Ec., Off. Education, Trade & Industry
Pinal	Apache Junction H.S.	Office Education
	Casa Grande H.S.	Agriculture, Office Education
	Coolidge H.S.	Agri., Off. Ed., Trade & Industry
	Florence H.S.	Agri., Health, Office Education
	Maricopa H.S.	Office Education, Trade & Industry
	Ray District H.S.	Office Education, Trade & Industry
	San Manuel H.S.	Office Education
	Santa Cruz Valley H.S.	Agriculture, Office Education
Santa Cruz	Nogales H.S.	Distributive Education, Office Education
	Patagonia Union H.S.	Office Education
Yavapai	Ash Fork H.S.	Office Education
	Camp Verde H.S.	Office Education
	Mayer H.S.	Agriculture, Office Education
	Mingus Union H.S.	Agriculture, Office Education
	Prescott H.S.	Agri., Dist. Ed., Off. Ed., Trade & Industry
Yuma	Antelope H.S.	Agriculture, Trade & Industry
	Kofa H.S.	Agri., Dist. Ed., Off. Ed., Trade & Industry
	Parker H.S.	Agri., Dist. Ed., Off. Ed., Trade & Industry
	Salome H.S.	Trade & Industry
	Yuma Union H.S.	Agri., Dist. Ed., Health, Home Ec., Trade & Industry

Data supplied by RCU Data Systems Division

Table 14

High Schools not Offering Career Preparation
1969-70

County	Total Schools in County	Schools not Offering Career Programs	Name of School
Apache	7	2	Ganado Teaching H.S. McNary H.S.
Gila	5	2	Young Teaching H.S. Payson H.S.
Greenlee	3	2	Clifton H.S. Morenci H.S.
Navajo	7	1	Joseph City H.S.
Pima	15	1	Ajo H.S.
Pinal	9	1	Superior H.S.
Yavapai	8	3	Bagdad H.S. Chino Valley H.S. Seligman H.S.

Data supplied by RCU Data Systems Division

A Class in Power Sewing, Phoenix Union High School

During the past year 39,562 out of 130,442 students representing 30.3% were enrolled in career education programs in Arizona secondary schools. Actual class enrollments totalled more than 41,000 counting students enrolled in more than one course. Table 15 lists the 1969-70 class enrollments grouped by service.

Table 15

Enrollment by Service 1969-70*
Secondary Schools, Arizona

Service	Male	Female	Total	% of Total
Agriculture	2,453	147	2,600	6.6
Distributive Ed.	1,046	1,565	2,611	6.6
Health Education	7	112	119	0.3
Home Ec. (Gainful)	54	184	238	0.6
Home Ec. (Useful)	2,507	22,657	25,164	63.6
Office Education	521	5,434	5,955	15.1
Trade & Industry	2,471	404	2,875	7.2
Total	9,059	30,503	39,562**	100.0

*Unduplicated count.
**An additional 52 enrollments are unclassified by OE codes, bringing total unduplicated enrollment to 39,621. This figure does not include special needs secondary enrollment. See Table 26, page 53 for special needs breakdown.
Data supplied by RCU Data Systems Division

Graphic Arts Class, Pueblo High School

Community Colleges

One of the most significant developments in education nationally as well as in Arizona during the past decade has been the growth of two-year community colleges. In 1960, with two junior colleges -- one in Phoenix and one in Thatcher -- Arizona followed the example of California as a number of other states were doing and passed the Junior College Law. Under that legislation Yuma County established Arizona Western College in 1962; Cochise followed in 1963; Maricopa added Glendale in 1966, Mesa in 1966, Maricopa Technical in 1968, and Scottsdale in 1970; Pinal established Central Arizona College in 1967; Yavapai College was opened at Prescott in 1969; and Pima College is beginning classes in 1970 in Tucson.

As important as this rapid growth of the two-year institution has been in opening up opportunities for higher education all over the state, its greatest impact has been in the expansion of career education. All ten community colleges in Arizona offer a variety of career education classes, and each campus is designated by the State Board for Vocational Education as an area vocational school. Table 16 lists the programs offered, and Table 17 shows total enrollments in all community colleges broken down by service. There were 9,246 students taking career education courses during the past year out of a total state-wide community college enrollment of 35,037 compared with 7,730 in a total enrollment of 27,724 in 1968-69.

Table 16

Junior College Vocational-Technical Programs
1969-70

Junior College	Programs Offered
Arizona Western College	Agri., Dist. Ed., Home Ec., Health Off. Ed., Technical, and Trade & Ind.
Central Arizona College	Agri., Dist. Ed., Health, Off. Ed., Technical, and Trade & Ind.
Cochise College	Dist. Ed., Health, Off. Ed., Technical, and Trade & Ind.
Eastern Arizona College	Dist. Ed., Off. Ed., Technical, and Trade & Ind.
Glendale Community College	Agri., Health, Off. Ed., Technical, and Trade & Ind.
Maricopa Technical College	Dist. Ed., Health, Off. Ed., Technical, and Trade & Ind.
Mesa Community College	Agri., Dist. Ed., Health, Off. Ed., Technical, and Trade & Ind.
Phoenix Community College	Dist. Ed., Health, Home Ec., Off. Ed., Technical, and Trade & Ind.
Pima College	Health
Yavapai College	Health, Off. Ed., and Technical

Data supplied by HEW Data Systems Division

Table 17

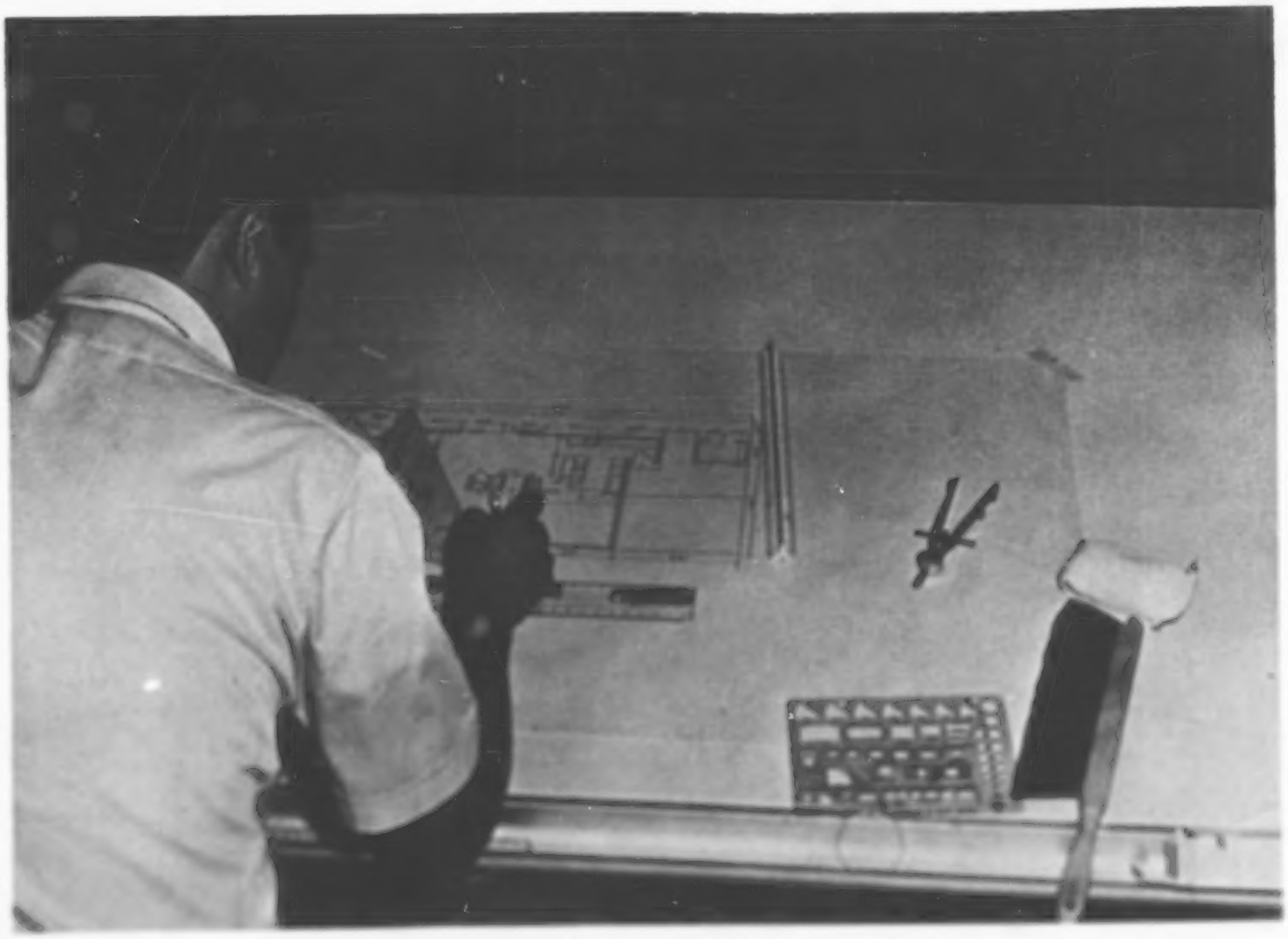
Enrollment by Service 1969-70*
Junior Colleges

Service	Male	Female	Total	% of Total
Agriculture	290	22	312	3.4
Distributive Ed.	615	132	747	8.1
Health Occupations	137	995	1,132	12.2
Home Ec. (Gainful)	22	244	414	2.9
Home Ec. (Useful)	0	21	21	0.2
Office Education	438	1,706	2,144	23.2
Technical	2,931	316	3,247	35.1
Trade & Industry	1,312	64	1,376	14.9
Unclassified	-	-	1	-
Total	5,745	3,500	9,246**	100.0

*Unduplicated count.

**This figure does not include special needs post-secondary enrollment. See Special Needs Table 26, page 53 for breakdown.

Data supplied by RCU Data Systems Division



Architectural Drafting, Cochise College, Douglas

Annual Enrollment

In meeting the needs of students for career education and of employers for skilled personnel, the state's entire educational system is coordinated in two main directions: Kinds of occupations and kinds of students. The first is more easily defined than the second and more easily observed. Kinds of occupations are related both to the employment market and to specialization within school training programs. The familiar service classifications in vocational education are used here to present the patterns of enrollment throughout Arizona for each of the past two years by grade level and sex, broken down into each separate occupation for which training programs are available. These are shown in Tables 18-25 on the following pages.

Table 18

Agricultural Occupations, 1968-69 and 1969-70 Enrollment

		Total		Gr. 9		Gr. 10		Gr. 11		Gr. 12		Gr. 13		Gr. 14	
Year	Occupations	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1968-69	Ag. Production	1,097	31	286	02	297	14	249	14	180	05	55	01	30	02
1969-70	Ag. Production	1,065	42	257	04	286	12	210	07	162	07	105	09	46	03
1968-69	Ag. Supplies	75	05	17	02	28	01	16	01	05	01	07	-	02	-
1969-70	Ag. Supplies	93	09	10	02	16	01	14	01	09	-	33	04	11	01
1968-69	Ag. Mechanics	542	-	119	-	152	-	117	-	137	-	05	-	12	-
1969-70	Ag. Mechanics	482	03	135	-	144	01	122	01	78	01	02	-	01	-
1968-69	Ag. Products	122	06	29	-	29	04	31	-	29	02	-	-	04	-
1969-70	Ag. Products	120	07	23	02	23	01	21	-	20	-	27	04	06	-
1968-69	Orn. Horticul.	127	22	28	03	26	09	28	05	31	05	09	-	05	-
1969-70	Orn. Horticul.	110	47	12	08	28	06	20	26	34	07	11	-	05	-
1968-69	Ag. Resources	261	03	61	01	83	01	61	-	46	-	04	01	06	-
1969-70	Ag. Resources	245	07	61	02	67	-	71	04	34	01	08	-	04	-
1968-69	Forestry	265	-	50	-	77	-	69	-	64	-	05	-	-	-
1969-70	Forestry	245	01	58	-	64	-	67	-	51	01	03	-	02	-
1968-69	Other Ag.	425	43	96	04	133	13	86	10	89	08	16	06	05	02
1969-70	Other Ag.	382	53	80	05	90	22	98	14	88	11	10	-	16	01
1968-69	Totals	2,914	110	686	12	825	35	657	30	581	21	101	08	64	04
1969-70	Totals	2,743	169	636	23	718	43	623	53	476	28	199	17	91	05

·Data supplied by RCU Data Systems Division

Agriculture Mechanics, Kofa High School, Yuma

Class in Horticulture, Tucson High School

Distributive Education Student, McClintock High School, Tempe

Table 19

Distributive Occupations
1968-69 and 1969-70 Enrollment

Year	Occupations	Total		Gr. 9		Gr. 10		Gr. 11		Gr. 12		Gr. 13		Gr. 14	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F
1968-69	Advertising Serv.	105	56	-	-	-	-	22	26	12	17	49	09	22	04
1969-70	Advertising Serv.	48	50	-	-	01	-	20	26	18	22	03	01	06	01
1968-69	Apparel & Access.	37	317	-	-	-	-	05	194	31	121	-	-	01	02
1969-70	Apparel & Access.	39	367	-	-	-	02	13	239	21	119	03	06	02	01
1968-69	Auto & Petrol.	101	02	-	-	-	-	73	-	27	02	01	-	-	-
1969-70	Auto & Petrol.	98	09	-	-	-	-	51	07	44	02	01	-	02	-
1968-69	Finance & Credit	17	38	-	-	-	-	07	18	05	20	04	-	01	-
1969-70	Finance & Credit	28	39	-	-	-	02	17	19	08	16	01	02	02	-
1968-69	Food Distribution	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Food Distribution	55	24	-	-	-	-	12	07	40	17	01	-	02	-
1968-69	Food Services	21	45	-	-	-	-	24	08	46	13	02	-	02	-
1969-70	Food Services	41	43	-	-	-	-	14	19	23	24	01	-	03	-
1968-69	Foreign Trade	13	10	-	-	-	-	17	28	14	17	-	-	-	-
1969-70	Foreign Trade	11	18	-	-	-	-	07	07	04	11	-	-	-	-
1968-69	Gen. Merchandise	76	172	-	-	-	-	35	74	41	87	01	10	-	01
1969-70	Gen. Merchandise	353	244	-	-	-	-	47	87	46	115	228	28	32	04
1968-69	Hrdw.,Bldg.Mater. Frm & Grdn. Supp.	22	02	-	-	-	-	11	02	10	-	01	-	02	-
1969-70	Hrdw.,Bldg.Mater. Frm & Gardn. Supp.	32	08	-	-	-	-	17	02	15	06	-	-	-	-
1968-69	Home Furnishings	12	58	-	-	-	-	05	46	07	12	-	-	-	-
1969-70	Home Furnishings	10	75	-	-	-	-	04	44	05	30	01	01	-	-
1968-69	Hotel & Lodging	20	11	-	-	-	-	13	09	06	02	01	-	-	-
1969-70	Hotel & Lodging	22	21	-	-	-	-	16	11	04	04	01	06	01	-
1968-69	Insurance	47	15	-	-	-	-	09	06	07	04	12	04	19	01
1969-70	Insurance	11	09	-	-	-	-	08	08	02	-	-	-	01	01
1968-69	Management	189	33	-	-	-	-	67	13	63	12	42	04	17	04
1969-70	Management	161	50	-	-	-	-	56	22	73	25	20	-	12	03
1968-69	Marketing	200	277	-	-	-	-	82	205	37	61	57	07	24	04
1969-70	Marketing	202	235	-	-	02	01	106	167	41	65	39	02	14	-
1968-69	Mid-Management	78	16	-	-	-	-	21	03	11	09	20	03	26	01
1969-70	Mid-Management	162	58	-	-	-	-	11	16	23	10	73	21	55	11
1968-69	Real Estate	16	01	-	-	-	-	11	01	03	-	01	-	01	-
1969-70	Real Estate	64	22	-	-	-	-	10	04	05	01	49	17	-	-
1968-69	Retailing	95	191	-	-	-	-	27	83	52	107	03	-	13	01
1969-70	Retailing	89	150	-	-	02	-	24	51	57	96	02	01	04	02
1968-69	Transportation	41	79	-	-	-	-	18	60	08	18	08	01	07	-
1969-70	Transportation	40	85	-	-	01	-	14	63	12	22	05	-	08	-
1968-69	Wholesaling	20	17	-	-	-	-	08	08	05	06	-	-	07	03
1969-70	Wholesaling	17	11	-	-	-	-	14	07	03	04	-	-	-	-
1968-69	Other D.E. Pgms.	242	451	-	-	-	-	49	107	23	45	139	268	31	31
1969-70	Other D.E. Pgms.	178	179	05	01	07	02	73	110	50	52	32	11	11	03
1968-69	Totals	1,436	1,812	-	-	-	-	511	898	414	556	341	306	172	52
1969-70	Totals	1,661	1,697	05	01	13	07	534	916	494	641	460	106	155	26

Data supplied by RCU Data Systems Division

Table 20

Health Occupations
1968-69 and 1969-70 Enrollments

Year	Occupations	Totals M	Totals F	Gr. 9 M	Gr. 9 F	Gr. 10 M	Gr. 10 F	Gr. 11 M	Gr. 11 F	Gr. 12 M	Gr. 12 F	Gr. 13 M	Gr. 13 F	Gr. 14 M	Gr. 14 F
1968-69	Dental Asst.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Dental Asst.	-	45	-	-	-	-	-	-	-	-	-	34	-	11
1968-69	Dental Hygientist	-	28	-	-	-	-	-	-	-	-	-	25	-	03
1969-70	Dental Hygientist	02	44	-	-	-	-	-	-	-	-	-	31	02	13
1968-69	Medical Services	24	81	-	-	-	01	-	-	-	-	-	15	04	65
1969-70	Medical Services	05	28	-	-	-	-	-	-	-	-	03	15	02	13
1968-69	Med. Lab. Asst.	02	10	-	-	-	-	-	-	-	-	02	06	00	04
1969-70	Med. Lab. Asst.	05	19	-	-	-	-	-	-	-	-	05	18	-	01
1968-69	Nurse Assoc. Deg.	35	367	-	-	-	-	-	-	-	-	15	147	20	220
1969-70	Nurse Assoc. Deg.	17	335	-	-	-	-	-	-	-	-	13	188	04	147
1968-69	Practical Nurse	39	640	-	-	-	-	-	-	03	69	31	547	05	24
1969-70	Practical Nurse	26	378	-	-	-	-	-	-	02	56	22	292	02	30
1968-69	Nurse's Aide	-	17	-	-	-	-	-	-	-	-	-	-	-	17
1969-70	Nurse's Aide	10	128	-	-	-	-	-	-	01	38	06	81	03	09
1968-69	Surgical Tech.	03	23	-	-	-	-	-	-	-	-	-	02	03	21
1969-70	Surgical Tech.	01	03	-	-	-	-	-	-	-	-	01	03	-	-
1968-69	Inhalation Therapy	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Inhalation Therapy	45	11	-	-	-	-	-	-	-	-	21	09	24	02
1968-69	X-Ray Tech.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	X-Ray Tech.	08	10	-	-	-	-	-	-	-	-	04	08	04	02
1968-69	Optician	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Optician	01	-	-	-	-	-	-	-	-	-	-	-	01	-
1968-69	Other	-	04	-	-	-	-	-	-	-	-	-	02	-	02
1969-70	Other	24	106	-	-	-	-	-	03	04	15	09	42	11	46
1968-69	Totals	83	1,170	-	-	-	01	-	-	03	69	48	744	32	356
1969-70	Totals	144	1,107	-	-	-	-	-	03	07	109	84	721	53	274

Data supplied by RCU Data Systems Division

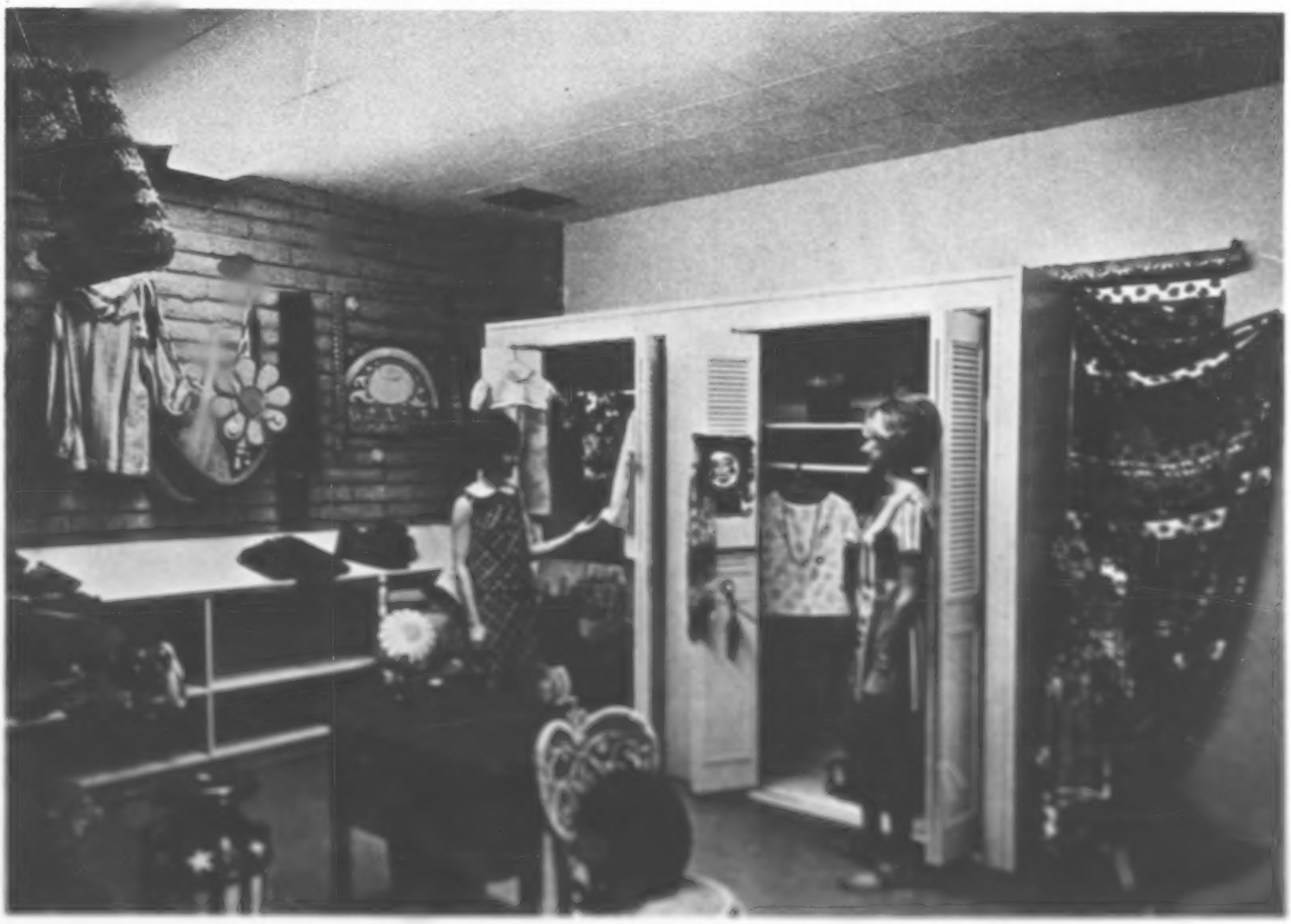
X-Ray Technician Training, Good Samaritan Hospital, Phoenix

Table 21

Home Economics Occupations (Gainful)
1968-69 and 1969-70 Enrollment

Year	Occupations	Total M	Total F	Gr. 9 M	Gr. 9 F	Gr. 10 M	Gr. 10 F	Gr. 11 M	Gr. 11 F	Gr. 12 M	Gr. 12 F	Gr. 13 M	Gr. 13 F	Gr. 14 M	Gr. 14 F
1968-69	Occup. Prep.	-	53	-	-	-	16	-	17	-	19	-	-	-	01
1969-70	Occup. Prep.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Child Care & Guid.	02	71	-	-	-	-	01	16	01	24	-	18	-	13
1969-70	Child Care & Guid.	05	120	-	-	-	-	-	21	04	20	-	39	01	40
1968-69	Clothing Mgt.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Clothing Mgt.	09	92	-	-	-	-	-	03	-	02	09	52	-	-
1968-69	Food Mgt. & Serv.	23	42	02	-	-	02	05	17	11	19	04	03	01	01
1969-70	Food Mgt. & Serv.	51	86	-	03	08	04	19	22	17	19	03	24	04	14
1968-69	Home Furnishings	01	-	-	-	-	-	-	-	01	-	-	-	-	-
1969-70	Home Furnishings	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Institutions	06	96	04	07	01	41	01	23	-	19	-	06	-	-
1968-69	Other	01	41	-	-	-	-	-	24	-	03	-	12	01	02
1969-70	Other	05	34	-	-	-	-	-	-	-	-	01	23	04	11
1968-69	Totals	27	207	02	-	-	18	06	74	13	65	04	33	02	17
1969-70	Totals	76	428	04	10	09	45	20	69	21	60	13	174	09	70

Data supplied by RCU Data Systems Division



Fashion Industry Class, Mesa Community College

Table 22

Home Economics Occupations (Useful)*
1969 - 1970 Enrollments

Occupation	Total M	Total F	Gr. 9 M	Gr. 9 F	Gr. 10 M	Gr. 10 F	Gr. 11 M	Gr. 11 F	Gr. 12 M	Gr. 12 F	Gr. 13 M	Gr. 13 F	Gr. 14 M	Gr. 14 F
Comprehensive H.E.	523	10,914	44	5,135	69	2,514	74	1,646	336	1,610	-	02	-	07
Child Development	200	1,871	01	211	-	149	60	949	139	562	-	-	-	-
Clothing & Textile	38	3,291	13	1,288	10	826	02	724	13	441	-	06	-	06
Consumer Educ.	43	104	-	-	-	57	19	23	24	24	-	-	-	-
Family Relations	1,452	2,483	05	146	01	66	123	307	1,323	1,964	-	-	-	-
Foods & Nutrit.	203	2,956	27	1,154	28	733	51	707	97	362	-	-	-	-
Home Management	31	382	-	73	09	71	08	188	14	50	-	-	-	-
Housing & Home	-	473	-	-	-	94	-	207	-	172	-	-	-	-
Other H.E. Useful	17	204	-	77	04	37	03	60	10	30	-	-	-	-
Totals	2,507	22,678	90	8,084	121	4,547	340	4,811	1,956	5,215	-	08	-	13

*Enrollment data are available for the past year only.
Data supplied by RCU Data Systems Division

Child Care, Pueblo High School, Tucson

Table 23

Office Education
1968 - 1970 Enrollment

Year	Occupation	Total		Gr. 9		Gr. 10		Gr. 11		Gr. 12		Gr. 13		Gr. 14	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F
1968-69	Acct. & Compt.	75	117	-	-	01	04	16	33	28	52	28	25	02	03
1969-70	Acct. & Compt.	68	150	-	-	02	08	18	33	30	65	16	41	02	03
1968-69	Data Processing	89	309	-	02	04	08	25	99	56	199	-	-	04	01
1969-70	Data Processing	376	345	-	-	03	10	33	72	66	159	256	97	18	07
1968-69	Gen. Clerical	91	1,618	-	-	03	29	10	460	74	978	02	112	02	39
1969-70	Gen. Clerical	114	1,747	01	04	04	80	35	472	52	977	13	147	09	67
1968-69	Infor. Commun.	08	75	-	-	-	03	04	30	04	42	-	-	-	-
1969-70	Infor. Commun.	10	104	-	-	01	07	03	30	05	38	01	28	-	01
1968-69	Trans. & Stor.,Etc.	12	18	-	-	02	01	03	06	07	07	-	01	-	03
1969-70	Trans. & Stor.,Etc.	11	25	-	-	-	04	07	02	02	04	02	13	-	02
1968-69	Personnel	04	72	-	-	01	01	01	21	-	22	01	20	01	08
1969-70	Personnel	13	56	-	-	-	05	06	26	06	16	01	07	-	02
1968-69	Sec. & Steno.	20	2,109	-	-	02	02	11	606	14	1,071	13	268	01	88
1969-70	Sec. & Steno.	23	2,512	-	-	01	80	04	640	04	889	09	741	05	162
1968-69	Super. & Admin.	34	18	-	-	02	02	11	04	16	09	-	02	05	01
1969-70	Super. & Admin.	93	74	-	-	01	01	12	11	18	11	53	49	09	02
1968-69	Typing	107	1,136	04	04	14	69	38	604	42	338	09	103	-	18
1969-70	Typing	157	1,613	-	04	18	127	62	745	44	459	25	228	08	50
1968-69	Other	83	389	01	02	04	29	33	174	43	159	02	22	-	03
1969-70	Other	94	514	-	03	09	69	26	184	48	199	08	42	03	17
1968-69	Totals	543	5,861	05	08	32	222	152	2,037	284	2,877	55	553	15	164
1969-70	Totals	959	7,140	01	11	39	391	206	2,215	275	2,817	384	1,393	54	313

Data supplied by RCU Data Systems Division

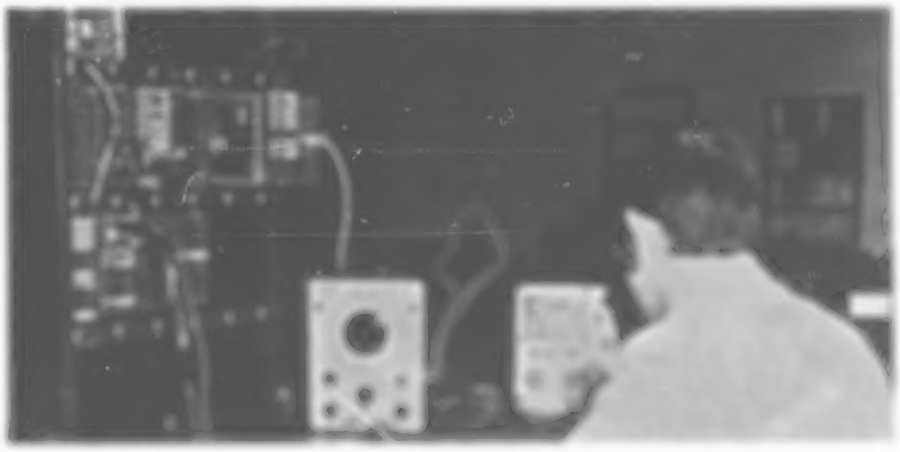
Business Data Processing, Arizona Western College, Yuma

Table 24

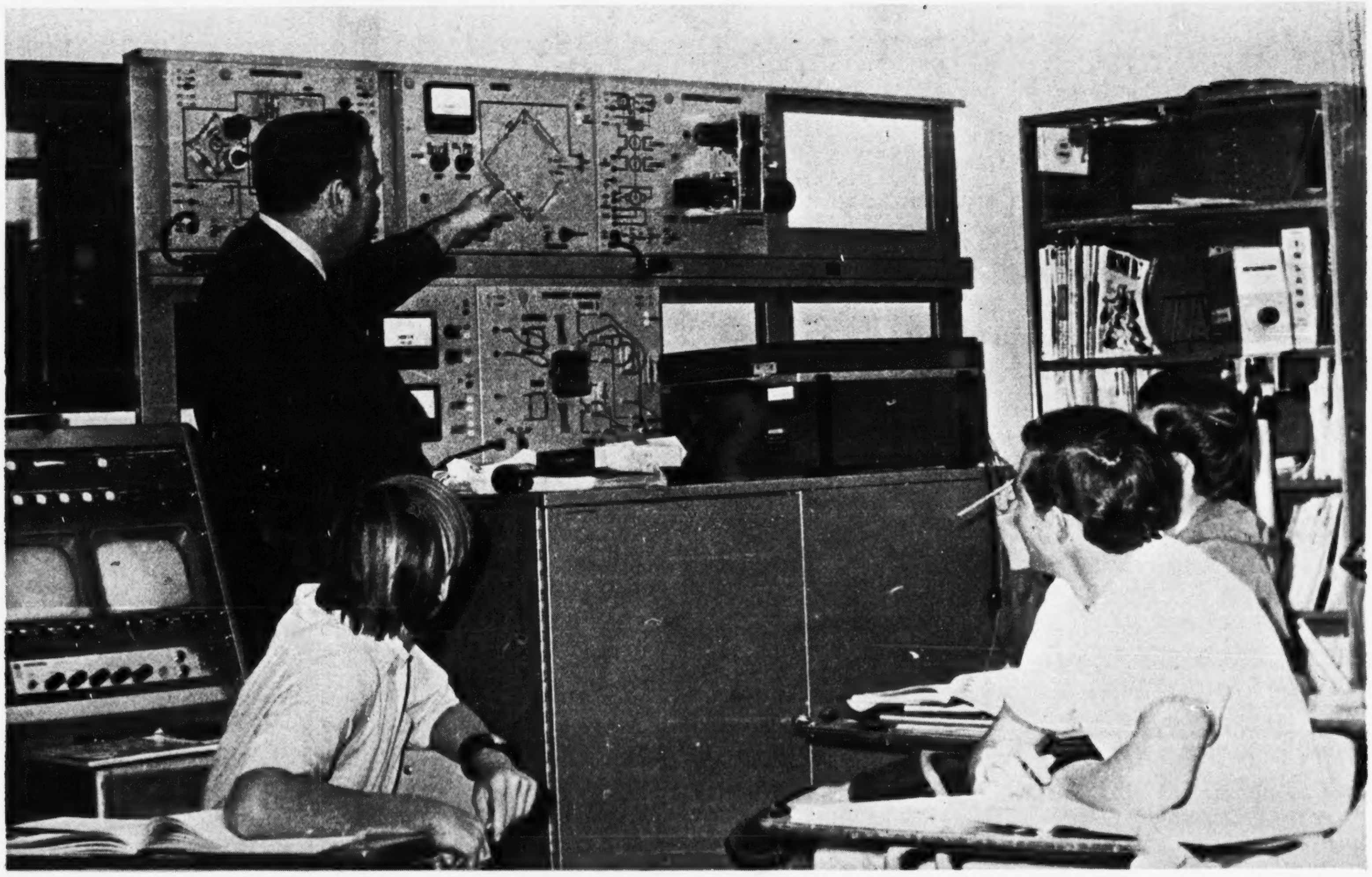
Technical Occupations, 1968 - 1970 Enrollments

		Total		Gr. 9		Gr. 10		Gr. 11		Gr. 12		Gr. 13		Gr. 14	
Year	Occupations	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1968-69	Engineering Tech.	85	03	-	-	-	-	-	-	-	-	56	02	27	01
1969-70	Engineering Tech.	230	06	01	-	-	-	01	-	05	-	185	05	38	01
1968-69	Automotive Tech.	219	-	-	-	-	-	-	-	-	-	122	-	97	-
1969-70	Automotive Tech.	245	06	-	-	-	-	-	-	02	-	181	06	62	-
1968-69	Civil Technology	7	-	-	-	-	-	-	-	-	-	04	-	03	-
1969-70	Civil Technology	61	02	-	-	-	-	-	-	-	-	40	02	21	-
1968-69	Electric Tech.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Electric Tech.	67	01	-	-	-	-	-	-	01	-	65	01	01	-
1968-69	Electronics Tech.	467	10	-	-	-	-	-	-	-	-	329	-	08	-
1969-70	Electronics Tech.	882	22	-	-	-	-	-	-	21	-	676	18	185	04
1968-69	Industrial Tech.	17	-	-	-	-	-	-	-	-	-	04	-	17	-
1969-70	Industrial Tech.	22	01	-	-	-	-	-	-	-	-	14	01	08	-
1968-69	Mechanical Tech.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Mechanical Tech.	13	-	01	-	-	-	-	-	-	-	07	-	05	-
1968-69	Metallurgical	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Metallurgical	07	-	-	-	-	-	-	-	-	-	04	-	03	-
1968-69	Data Processing	174	05	-	-	-	-	-	-	-	-	117	04	57	01
1969-70	Data Processing	516	257	03	01	-	-	01	-	01	-	381	207	130	49
1968-69	Draft. & Design	135	05	-	-	-	-	-	-	-	-	78	04	57	01
1969-70	Draft. & Design	701	15	-	-	-	-	-	-	02	-	555	12	144	03
1968-69	Welding	59	-	-	-	-	-	-	-	-	-	32	-	27	-
1969-70	Welding	80	-	-	-	-	-	-	-	-	-	65	-	15	-
1968-69	Other Technology	206	78	-	-	-	-	-	-	-	-	111	35	95	43
1969-70	Other Technology	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Aircraft Maint.	92	-	-	-	-	-	-	-	-	-	85	-	07	-
1969-70	Aircraft Maint.	53	-	-	-	-	-	-	-	-	-	33	-	20	-
1968-69	Profess. Pilot	18	-	-	-	-	-	-	-	-	-	14	-	04	-
1969-70	Profess. Pilot	25	-	-	-	-	-	-	-	-	-	15	-	10	-
1968-69	Aviat. Electron.	01	-	-	-	-	-	-	-	-	-	-	-	01	-
1969-70	Aviat. Electron.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Other	17	02	-	-	-	-	-	-	-	-	10	-	07	02
1969-70	Other	69	07	-	-	-	-	-	-	01	-	46	05	22	02
1968-69	Totals	1,498	103	-	-	-	-	-	-	-	-	965	53	533	50
1969-70	Totals	2,971	317	05	01	-	-	02	-	33	-	2,267	257	664	59

Data supplied by RCU Data Systems Division



Technology Class, Cochise Community College, Douglas



Electronic Technology, Arizona Western College

Manufacturing Process Technology, Mesa Community College

Table 25

Trade and Industry
1968 - 1970 Enrollment

Year	Occupation	Total		Gr. 9		Gr. 10		Gr. 11		Gr. 12		Gr. 13		Gr. 14	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F
1968-69	Air Condit.	36	-	-	-	01	-	07	-	13	-	02	-	13	-
1969-70	Air Condit.	01	-	-	-	-	-	01	-	-	-	-	-	-	-
1968-69	Cooling	09	01	-	-	-	01	07	-	02	-	-	-	-	-
1969-70	Cooling	07	-	-	-	-	-	03	-	04	-	-	-	-	-
1968-69	Ventilating	03	-	-	-	-	-	-	-	03	-	-	-	-	-
1969-70	Ventilating	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Appl. Repair	01	01	-	-	-	-	-	01	01	-	-	-	-	-
1969-70	Appl. Repair	49	01	-	-	-	-	-	-	-	-	48	01	01	-
1968-69	Auto Indust.	63	-	-	-	06	-	23	-	34	-	-	-	-	-
1969-70	Auto Indust.	66	-	01	-	15	-	26	-	24	-	-	-	-	-
1968-69	Body & Fend.	72	-	-	-	04	-	33	-	26	-	03	-	06	-
1969-70	Body & Fend.	77	-	-	-	07	-	26	-	39	-	04	-	01	-
1968-69	Mechanics	637	-	08	-	71	-	223	-	319	-	10	-	06	-
1969-70	Mechanics	1,043	04	03	-	91	-	323	-	434	03	182	01	10	-
1968-69	Specializ.	53	01	-	-	06	-	10	-	35	01	01	-	01	-
1969-70	Specializ.	59	-	-	-	07	-	06	-	17	-	01	-	28	-
1968-69	Other Auto	47	01	-	-	03	-	16	-	25	01	01	-	02	-
1969-70	Other Auto	68	07	01	-	02	-	25	-	38	07	-	-	02	-
1968-69	Aircraft Oper.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Aircraft Oper.	04	-	-	-	02	-	01	-	01	-	-	-	-	-
1968-69	Ground Oper.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Ground Oper.	01	-	-	-	-	-	-	-	01	-	-	-	-	-
1968-69	Blueprint	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Blueprint	07	03	-	-	-	-	04	02	03	01	-	-	-	-
1968-69	Aircraft Maint.	43	-	-	-	-	-	10	-	23	-	-	-	10	-
1969-70	Aircraft Maint.	48	-	-	-	-	-	16	-	28	-	02	-	02	-
1968-69	Business Mach.	03	-	-	-	01	-	-	-	-	-	02	-	-	-
1969-70	Business Mach.	01	-	-	-	-	-	-	-	-	-	01	-	-	-
1968-69	Comm. Art	30	19	-	-	-	-	16	04	14	14	-	-	-	01
1969-70	Comm. Art	43	26	-	-	-	-	10	12	28	10	04	02	01	02
1968-69	Comm. Photo.	28	07	-	-	-	-	05	01	18	06	05	-	-	-
1969-70	Comm. Photo.	33	17	-	-	12	03	08	04	13	10	-	-	-	-
1968-69	Construction	16	-	-	-	02	-	05	-	06	-	-	-	03	-
1969-70	Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Carpentry	58	01	01	-	13	-	20	-	23	-	-	-	01	01
1969-70	Carpentry	84	-	01	-	05	-	30	-	45	-	02	-	01	-
1968-69	Electricity	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Electricity	16	-	-	-	01	-	09	-	06	-	-	-	-	-
1968-69	Heavy Equip.	10	01	-	-	02	01	03	-	05	-	-	-	-	-
1969-70	Heavy Equip.	10	-	-	-	-	-	04	-	05	-	-	-	01	-
1968-69	Masonry	03	-	-	-	-	-	02	-	01	-	-	-	-	-
1969-70	Masonry	04	-	-	-	-	-	-	-	04	-	-	-	-	-
1968-69	Paint & Decor.	05	-	-	-	-	-	-	-	05	-	-	-	-	-
1969-70	Paint & Decor.	01	-	-	-	-	-	-	-	01	-	-	-	-	-
1968-69	Other Const.	05	-	-	-	-	-	-	-	05	-	-	-	-	-
1969-70	Other Const.	02	-	-	-	-	-	-	-	02	-	-	-	-	-
1968-69	Custodial Serv.	13	-	-	-	-	-	01	-	12	-	-	-	-	-
1969-70	Custodial Serv.	04	-	-	-	-	-	-	-	04	-	-	-	-	-
1968-69	Diesel Mech.	39	-	-	-	02	-	19	-	16	-	01	-	01	-
1969-70	Diesel Mech.	67	-	-	-	02	-	16	-	19	-	20	-	10	-
1968-69	Drafting	210	05	35	-	14	-	59	04	90	01	05	-	07	-
1969-70	Drafting	312	11	01	-	04	-	41	-	61	01	195	10	10	-

Table 25 (cont'd)

		Total		Gr. 9		Gr. 10		Gr. 11		Gr. 12		Gr. 13		Gr. 14	
Year	Occupation	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1968-69	Indust. Elec.	22	-	-	-	01	-	05	-	08	-	-	-	08	-
1969-70	Indust. Elec.	06	01	-	-	01	-	02	01	03	-	-	-	-	-
1968-69	Motor Repair	01	-	-	-	-	-	-	-	01	-	-	-	-	-
1969-70	Motor Repair	01	-	-	-	-	-	-	-	01	-	-	-	-	-
1968-69	Other Elec.	02	-	-	-	-	-	01	-	-1	-	-	-	-	-
1969-70	Other Elec.	03	-	-	-	-	-	02	-	01	-	-	-	-	-
1968-69	Electronics	09	-	-	-	-	-	03	-	06	-	-	-	-	-
1969-70	Electronics	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Communicat.	28	02	-	-	-	-	06	-	05	02	11	-	06	-
1969-70	Communicat.	21	05	-	-	01	-	07	01	13	04	-	-	-	-
1968-69	Industry	16	-	-	-	-	-	08	-	08	-	-	-	-	-
1969-70	Industry	46	01	-	-	01	-	18	-	27	01	-	-	-	-
1968-69	Radio/TV	27	01	-	-	-	-	06	-	21	01	-	-	-	-
1969-70	Radio/TV	91	-	-	-	02	-	36	-	52	-	01	-	-	-
1968-69	Other Electron.	83	07	01	-	-	-	39	01	29	06	-	-	14	-
1969-70	Other Electron.	35	04	-	-	11	-	16	04	08	-	-	-	-	-
1968-69	Fabric Maint.	02	-	-	-	-	-	-	-	02	-	-	-	-	-
1969-70	Fabric Maint.	03	01	-	-	-	-	-	-	03	01	-	-	-	-
1968-69	Foreman, Supvr.	06	-	02	-	-	-	-	-	04	-	-	-	-	-
1969-70	Foreman, Supvr.	05	-	-	-	-	-	-	-	05	-	-	-	-	-
1968-69	Graphic Arts	90	07	10	-	03	-	18	01	55	06	02	-	02	-
1969-70	Graphic Arts	141	17	-	-	05	-	26	04	36	03	62	09	12	01
1968-69	Reactors	01	-	-	-	-	-	-	-	01	-	-	-	-	-
1969-70	Reactors	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Instruments	-	01	-	-	-	-	-	-	-	01	-	-	-	-
1969-70	Instruments	01	01	-	-	-	-	-	-	01	-	-	-	-	01
1968-69	Metal Work	02	01	-	-	-	-	01	-	01	01	-	-	-	-
1969-70	Metal Work	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Foundry	01	-	-	-	-	-	-	-	01	-	-	-	-	-
1969-70	Foundry	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Machine Shop	200	02	-	-	14	-	59	02	99	-	04	-	24	-
1969-70	Machine Shop	221	-	04	-	08	-	55	-	75	-	78	-	01	-
1968-69	Machine Tools	01	-	-	-	-	-	01	-	-	-	-	-	-	-
1969-70	Machine Tools	02	-	-	-	-	-	-	-	02	-	-	-	-	-
1968-69	Metal Trades	04	-	-	-	-	-	-	-	04	-	-	-	-	-
1969-70	Metal Trades	28	-	-	-	09	-	04	-	15	-	-	-	-	-
1968-69	Sheet Metal	11	-	-	-	-	-	02	-	03	-	06	-	-	-
1969-70	Sheet Metal	36	01	06	-	04	-	14	-	10	-	-	01	02	-
1968-69	Welding	179	-	05	-	28	-	51	-	77	-	02	-	16	-
1969-70	Welding	118	-	-	-	08	-	29	-	64	-	06	-	11	-
1968-69	Other Metal	02	-	-	-	-	-	-	-	02	-	-	-	-	-
1969-70	Other Metal	06	02	-	-	-	-	01	-	05	02	-	-	-	-
1968-69	Personal Serv.	01	04	-	-	-	-	-	-	01	04	-	-	-	-
1969-70	Personal Serv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Cosmetology	01	104	-	-	-	-	-	-	01	56	-	07	-	41
1969-70	Cosmetology	01	110	-	-	-	01	-	16	01	92	-	-	-	01
1968-69	Other Person.	05	15	-	-	-	-	-	-	05	15	-	-	-	-
1969-70	Other Person.	02	19	-	-	-	-	-	-	02	19	-	-	-	-
1968-69	Plastics	01	-	-	-	-	-	-	-	01	-	-	-	-	-
1969-70	Plastics	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Fireman	01	-	-	-	-	-	-	-	01	-	-	-	-	-
1969-70	Fireman	94	-	-	-	-	-	-	-	-	-	93	-	01	-
1968-69	Law Enforce.	240	09	-	-	01	-	-	-	03	-	184	07	52	02
1969-70	Law Enforce.	510	31	-	-	01	-	02	-	03	01	393	25	111	05
1968-69	Other Pub.	03	-	-	-	-	-	-	-	03	-	-	-	-	-
1969-70	Other Pub.	-	03	-	-	-	-	-	-	-	03	-	-	-	-

Table 25 (cont'd)

Year	Occupation	Total M	Total F	Gr. 9 M	Gr. 9 F	Gr. 10 M	Gr. 10 F	Gr. 11 M	Gr. 11 F	Gr. 12 M	Gr. 12 F	Gr. 13 M	Gr. 13 F	Gr. 14 M	Gr. 14 F
1968-69	Quant. Food	09	02	-	-	-	-	-	-	09	02	-	-	-	-
1969-70	Quant. Food	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Baker	11	06	-	-	01	01	01	-	07	04	-	-	02	01
1969-70	Baker	21	16	-	-	02	04	09	09	10	03	-	-	-	-
1968-69	Cook/Chef	24	08	-	-	-	-	08	03	14	04	-	-	02	01
1969-70	Cook/Chef	48	12	-	01	01	02	18	05	29	05	-	-	-	-
1968-69	Meat Cutter	03	-	-	-	-	-	-	-	03	-	-	-	-	-
1969-70	Meat Cutter	05	-	-	-	-	-	-	-	05	-	-	-	-	-
1968-69	Waiter/Waitr.	-	05	-	-	-	-	-	-	-	05	-	-	-	-
1969-70	Waiter/Waitr.	07	30	-	01	-	05	03	08	04	16	-	-	-	-
1968-69	Other Q. Food	10	03	-	-	-	-	01	-	09	03	-	-	-	-
1969-70	Other Q. Food	06	08	-	-	01	-	01	01	04	07	-	-	-	-
1968-69	Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Refrigeration	39	-	-	-	05	-	14	-	14	-	05	-	01	-
1968-69	Stat. Energy	01	-	-	-	-	-	-	-	01	-	-	-	-	-
1969-70	Stat. Energy	01	49	-	-	-	02	01	24	-	23	-	-	-	-
1968-69	Pumping Plants	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1969-70	Pumping Plants	-	01	-	-	-	-	-	-	-	01	-	-	-	-
1968-69	Small Engine	02	-	-	-	-	-	01	-	01	-	-	-	-	-
1969-70	Small Engine	02	-	-	-	-	-	-	-	02	-	-	-	-	-
1968-69	Dressmaking	13	01	-	-	-	-	-	-	07	-	06	-	-	01
1969-70	Dressmaking	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Tailoring	02	-	-	-	01	-	01	-	-	-	-	-	-	-
1969-70	Tailoring	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Other Text.	-	11	-	-	-	-	-	04	-	06	-	-	-	-
1969-70	Other Text.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Upholstering	32	02	-	-	04	-	13	-	14	02	01	-	-	-
1969-70	Upholstering	22	01	-	-	01	-	10	-	11	-	-	-	-	01
1968-69	Woodworking	12	-	-	-	01	-	08	-	03	-	-	-	-	-
1969-70	Woodworking	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1968-69	Millwk. & Cab.	45	-	-	-	01	-	12	-	32	-	-	-	-	-
1969-70	Millwk. & Cab.	40	-	-	-	05	-	11	-	21	-	03	-	-	-
1968-69	Other Woodwork	04	-	-	-	-	-	-	-	04	-	-	-	-	-
1969-70	Other Woodwork	22	-	-	-	01	-	09	-	12	-	-	-	-	-
1968-69	Other T & I	30	27	-	-	02	-	10	-	17	25	-	-	01	02
1969-70	Other T & I	192	86	17	03	53	03	59	16	57	60	06	03	-	01
1968-69	Totals	2,522	255	62	-	182	03	714	21	1,140	166	246	14	178	51
1969-70	Totals	3,783	468	34	05	268	20	896	107	1,273	272	1,106	52	306	12

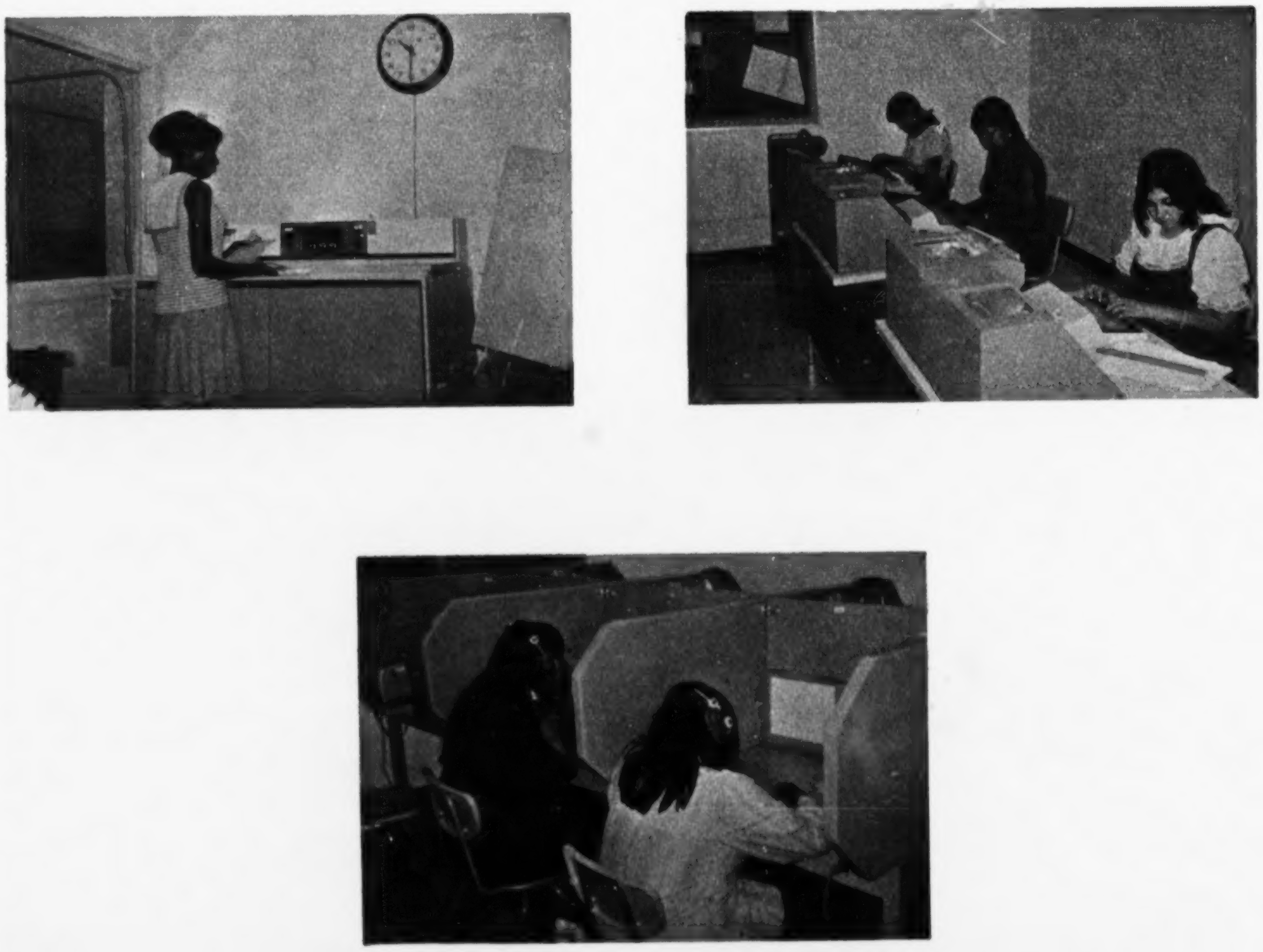
Data supplied by RCU Data Systems Division

Cosmetology Class, Phoenix Union High School

Welding Class, Window Rock High School

Students with Special Needs

Career education is especially important for the handicapped and disadvantaged, for those students who face particular obstacles in becoming employable and achieving success because of the circumstances under which they live. Some are physically handicapped; some are victims of poverty with social and cultural disadvantages; many have a combination of problems which make it extremely difficult for them to enter the world of work and make worthwhile contributions to their community and their own welfare. More than 4,000 such students in the secondary and post-secondary schools of Arizona were given special assistance during the past year in career education programs. They were found in regular vocational education programs, basic education, work-study, summer youth programs, skill centers, needletrades classes, correctional institutions, and schools for the deaf and blind. Table 26 is a complete county by county list of the schools and the career programs in which these students were given special assistance to prepare them for skilled employment. Figures in Table 26 are duplicated figures.



Special Needs Classes at Maricopa Skill Center, Phoenix

Table 26

Special Needs Enrollment by School & Service, 1969-70
(Duplicated Totals)*

County & School	Agri.	D.E.	Health	Home Ec.	Office	Tech	T&I	Basic	Work Study	Summer Youth Pgms	Total
Apache											
Chinle	64				61				4		129
Window Rock					39		218				257
Cochise											
Buena		5			12		12				29
Douglas		3		20			7				30
Valley Union	1										1
Willcox	1										1
Cochise Skill Ctr.							76				76
Cochise College			16								16
Coconino											
Coconino					7		3				10
Flagstaff		2					5				7
Grand Canyon					2						2
Tuba City					56						56
Williams					20						20
Graham											
Ft. Thomas	65						8				73
Pima							1				1
Safford		2					2			1	5
Thatcher							4				4
Industrial Sch.	7			7			120				134
Eastern Basic								37			37
Eastern Ariz. Coll.					22						22
Maricopa											
Carl Hayden		1									1
East		2			1						3
Gilbert	4				1						5
Glendale		1									1
Maryvale					2						2
Mesa				10			11				21
Paradise Valley					3						3
Peoria				2							2
Phoenix Union		30	6	1			7				44
Scottsdale					5						5
So. Mountain					2						2
Sunnyslope		2			19						20
Washington		13									13
West					1						1
Westwood					56						56
WIN Skill Ctr.				291				2			293
WIN				56							56
Phoenix Ndl. Trade							53				53
WIN Orient. Ctr.			47		94			53			194
Maricopa Basic					1			155			156
Buckeye Ndl. Trades							162				162
Maricopa Accom. Sch.							29				29
Mar. Cty. Detention							51				51
A.S.U.										1	1

Table 26 (cont'd)

unty & hool	Agri.	D.E.	Health	Home Ec.	Office	Tech	T & I	Basic	Work Study	Summer Youth Pgms	Total
vajo											
Alchesay	50				9						59
Holbrook					4						4
Monument Valley	54				33						87
Snowflake					1						1
ma											
Amphitheater					1					4	5
Catalina					2						2
Cholla										19	19
Flowing Wells					10						10
Indian Oasis	31				8				3		42
Marana										1	1
Palo Verde										2	2
Pueblo		97			2					125	224
Sahuarita					7		3				10
Sahuaro					2					2	4
Sunnyslope										28	28
Tucson	3		62							137	202
Voc. Train Ctr.				37	24		41				102
Sch. Deaf & Bld.					21		41			1	63
WIN Orient. Ctr.				194							194
WIN Skill Ctr.			79		102			177		1	359
Tucson Ndl. Trade							127				127
Howenstine				24							24
Santa Rita		6								2	8
Pima College										17	17
U. of A.										24	24
inal											
Casa Grande					10						10
Coolidge	1										1
State Prison					34		105				139
anta Cruz											
Nogales		6									6
Nogales Ndl. Trade							18				18
avapai											
Ash Fork					2						2
Mayer	10										10
Prescott	3				3						6
Yav. Coll. Skill							64				64
Yavapai College			3		6						9
uma											
Kofa	1										1
Yuma Ndl. Trade							96				96
Parker		5									5
Yuma			15								15
Arizona Western				1		2					3
Totals	295	175	228	643	684	2	1,264	424	7	365	4,087

Non-duplicated figures are shown by county in the Summary Tables, page 157.

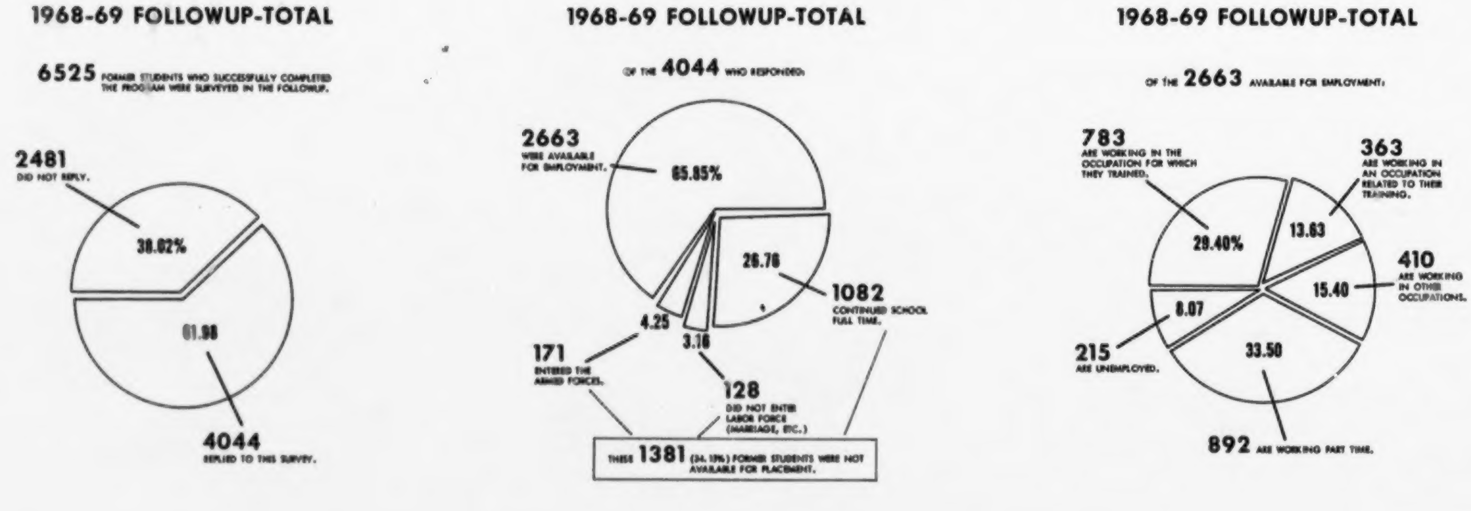
Data supplied by RCU Data Systems Division

Follow-up of 1968-69 Students

Traditionally vocational education teachers maintain a continuing interest in the employment records of their former students. In recent years the individual states and the U.S. Office of Education have been collecting increasingly reliable statistics from former students to determine how many were employed the following year in occupations for which they were trained, in related occupations, in non-related occupations, how many were unemployed seeking work, unemployed not seeking work, or not available for employment. Students who completed their training during the past year will be contacted this fall. Students in the regular secondary and post-secondary programs who completed their training in the school year 1968-69 were contacted the fall of 1969, and the results are shown on the following pages. It should be noted that, while 8.07% of those available for employment were unemployed, this represents only .05% of the total number responding. The national average unemployment rate for this age group is 14.6%. Lacking altogether in the follow-up statistics required by the federal government and in this report are measurements of the effect of career education on students who are continuing their education or are otherwise unavailable for employment. The follow-up of 1969-70 students will attempt to add this information.

Table 27

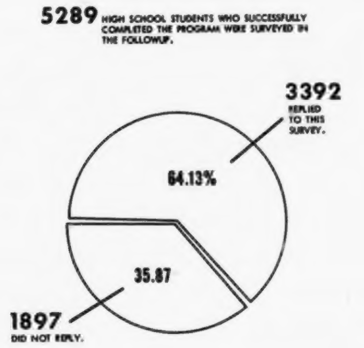
1968-69 Followup



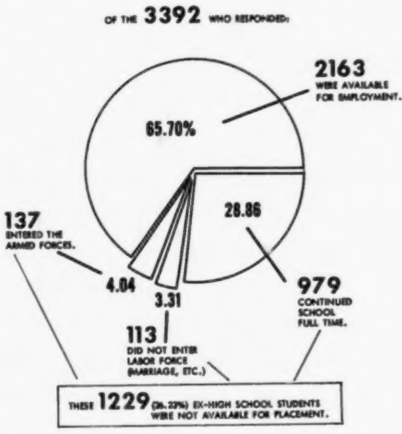
Data supplied by RCU Data Systems Division

Table 27 (Continued)

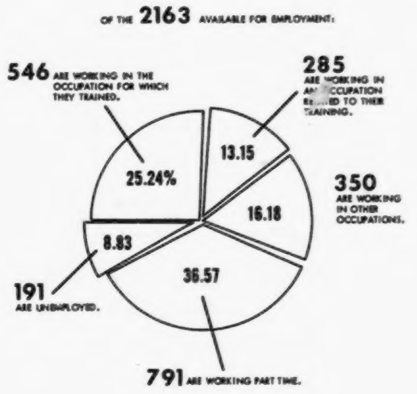
1968-69 FOLLOWUP- SECONDARY



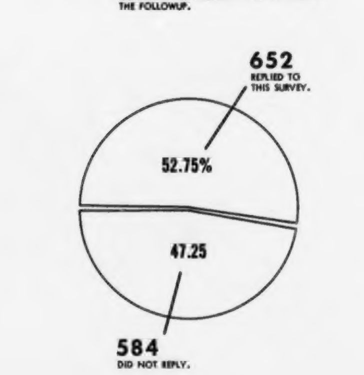
1968-69 FOLLOWUP-SECONDARY



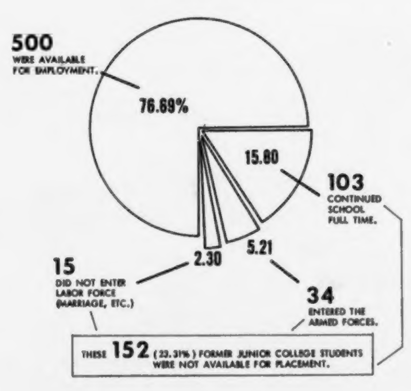
1968-69 FOLLOWUP- SECONDARY



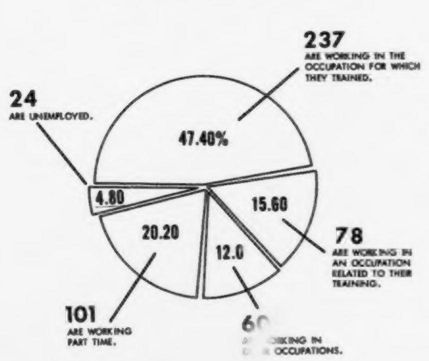
1968-69 FOLLOWUP-POST SECONDARY



1968-69 FOLLOWUP-POST SECONDARY

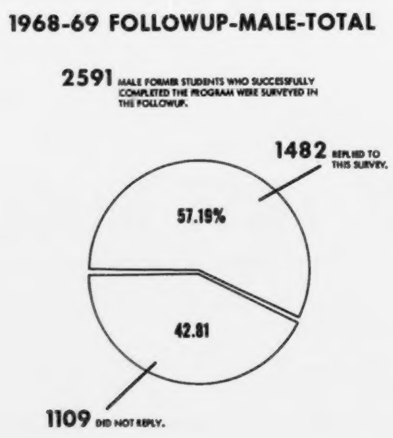


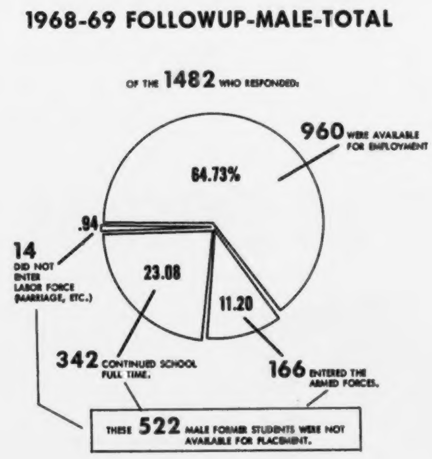
1968-69 FOLLOWUP-POST SECONDARY

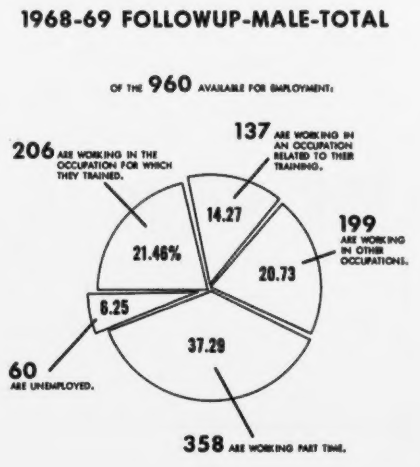


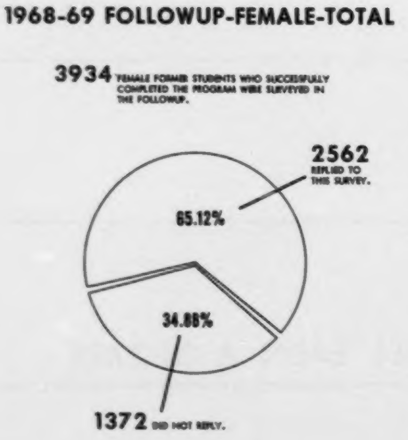
Data supplied by RCU Data Systems Division

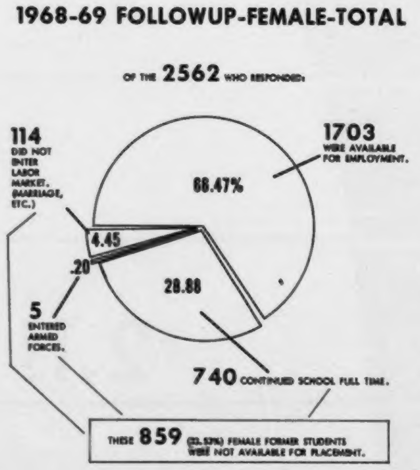
Table 27 (Continued)

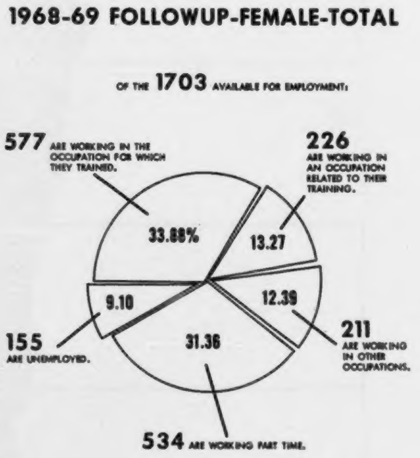








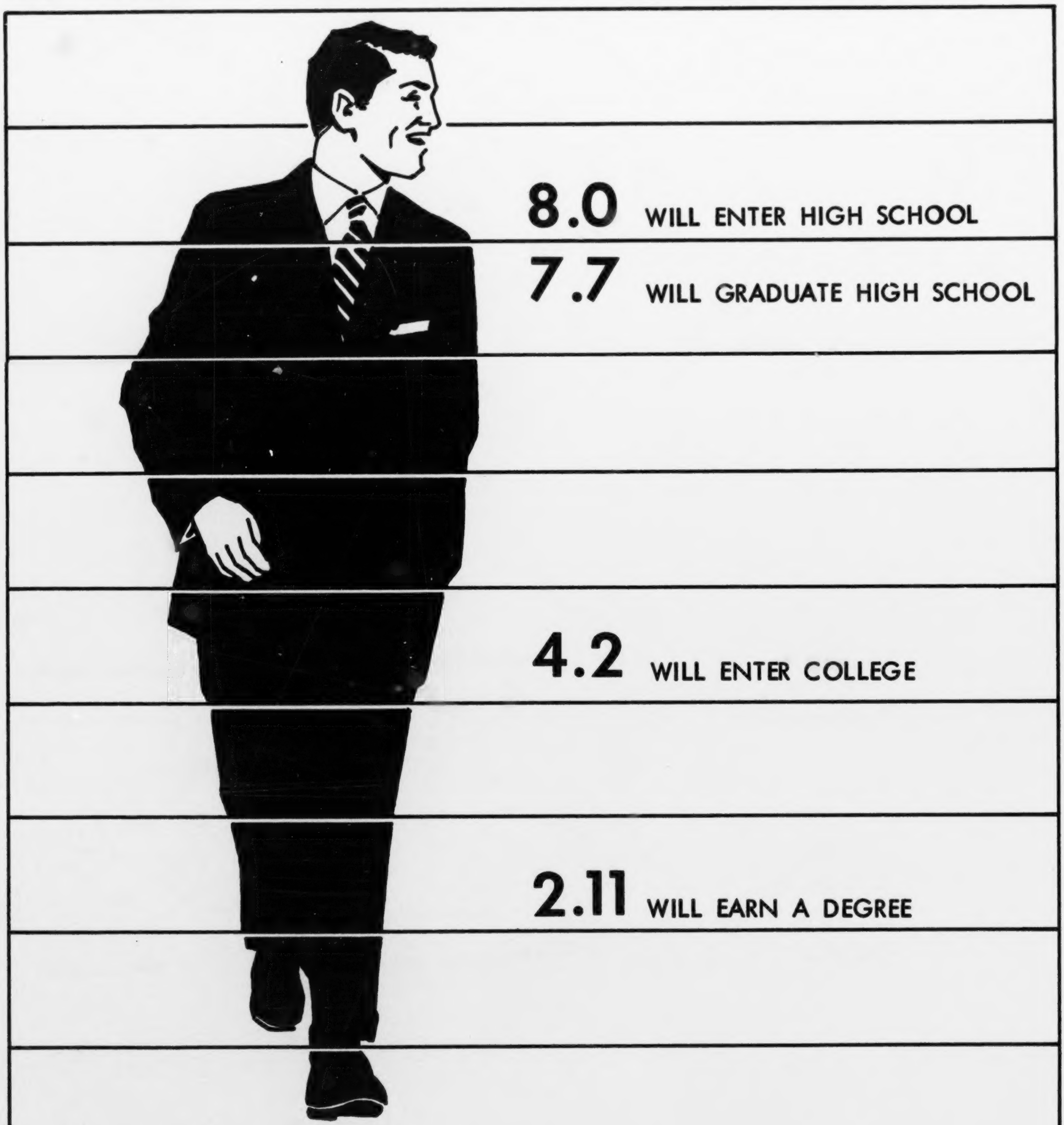




Data supplied by RCU Data Systems Division

PROFILE OF COMPLETED EDUCATION (NATIONALLY)

FOR EVERY 10 PUPILS ENTERING THE FIRST GRADE...



8.0 WILL ENTER HIGH SCHOOL

7.7 WILL GRADUATE HIGH SCHOOL

4.2 WILL ENTER COLLEGE

2.11 WILL EARN A DEGREE

Data Supplied by U.S. Office of Education

It is hazardous to speculate on the employment status of those who did not reply to the questionnaire, but it is not altogether unreasonable to assume that approximately the same percentages would be found available for work and employed in the occupation for which they were trained or in a related occupation as in the group that did reply. If the percentages of responses in the followup are used to estimate the status of all students who completed career education programs, including the 38% who did not reply, roughly 4,000 were employed. Half of these were employed full-time in the occupations for which they were trained or in related occupations. The rest were employed part time or in other occupations. Nearly 1,746 continued full-time in school, 277 entered the armed forces, 206 were not available for employment for other reasons, and 344 were employed seeking work. Table 28 shows the detailed breakdown of these figures as inflated by the percentages of responses to each question asked.

Table 28

Followup of Enrollees in Preparatory Vocational Education Programs
1968-1969 School Year

	Secondary	Post-Secondary	Total
Total number who completed program requirements.	5,289	1,236	6,525
Number not available for employment (Continuing school full-time, armed services, personal reasons).	1,916	288	2,204
Number available for employment.	3,373	948	4,321
Number working full-time in the occupations for which trained or related occupations.	1,295	597	1,892
Number working full-time in non-related occupation.	546	114	660
Number working part-time.	1,234	191	1,425
Number unemployed.	298	46	344
Number available for employment.	3,373	948	4,321

Data supplied by RCU Data Systems Division

Vocational Teacher Education

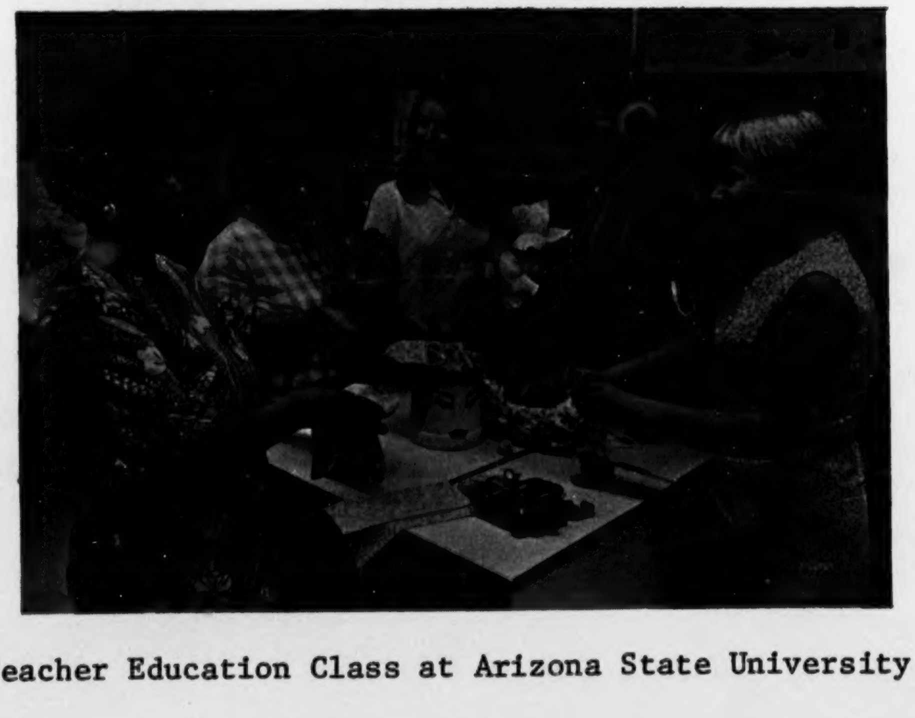
The critical element in career education, as in most education, is the quality and quantity of instructional personnel. Facilities and equipment depend only on funds to provide them. Instruction depends on funds as well, but also on the combination of time and professional development required to produce teachers capable of preparing students for a great variety of careers. Not only occupational specialization is required, but competence in teaching techniques and specialization in teaching certain kinds of career education programs. Arizona, for example, had seventy-three vocational education teachers during the past year teaching classes of disadvantaged students, and seventy-eight teachers in cooperative work experience programs. The total statewide instructional staff in secondary post-secondary, and adult vocational education was 1,841. Table 29 shows the distribution of instructional personnel by service, specialization, and level.

Table 29

Vocational Education Teachers in Arizona 1969-70

	Secondary	Post-Secondary	Adult	Total
Agriculture	51	10	7	68
Distributive	55	7	150	212
Health	23	120	23	166
Home Ec. (Useful)	197	0	0	197
Home Ec. (Gainful)	14	9	0	23
Office	65	38	83	186
Technical	0	74	0	74
Trade & Industry	132	74	110	316
Guidance	338	6	6	350
Cooperative (G)	66	12	0	78
Disadvantaged	34	15	24	73
Handicapped	31	0	0	31
Exemplary	49	0	0	49
Basic Education	4	4	10	18
Totals	1,059	369	413	1,841

Data supplied by State Department of Vocational Education



Teacher Education Class at Arizona State University

Each of the State's three universities offer courses in vocational teacher education both for students preparing to teach and for teachers updating their professional skills and knowledge. Table 30 shows the distribution of vocational teacher education during the past year by service and specialization, and also by educational level.

Table 30

Vocational Teacher Education Enrollments in Arizona 1969-70

By Service Area:	Pre-Service	In-Service
Agriculture	50	50
Distributive	160	71
Health	0	50
Home Ec. (Useful)	265	78
Home Ec. (Gainful)	12	10
Office	65	84
Technical	33	35
Trade & Industry	95	213
Administration	0	25
Guidance & Counseling	350	208
Exemplary Programs	0	0
Cooperative	0	50
Disadvantaged	0	50
Handicapped	0	50
Remedial	0	15
Total	1,030	989
By Educational Level:		
Secondary	997	555
Post-Secondary	33	202
Adult	0	232
Total	1,030	989

Data supplied by State Department of Vocational Education

Home Economics In-Service Teacher Education at Arizona State University

CHAPTER III

MANPOWER TRAINING AND PRIVATE PROGRAMS

Annually, our educational system turns out millions of unskilled and untrained graduates, and dropouts, into a work force that has no place for them. For most of our youth, the secondary school is their last chance for full-time education; consequently, their preparation for a job must come during high school. Education must be made relevant, with a deep concern for the total student; it must prepare each youth to graduate with a diploma in one hand and a job in the other. The alternative is clear -- we either provide him with a job or fight him in the streets.

-- *Alternative to a Decadent Society*
James A. Rhodes, Governor of Ohio

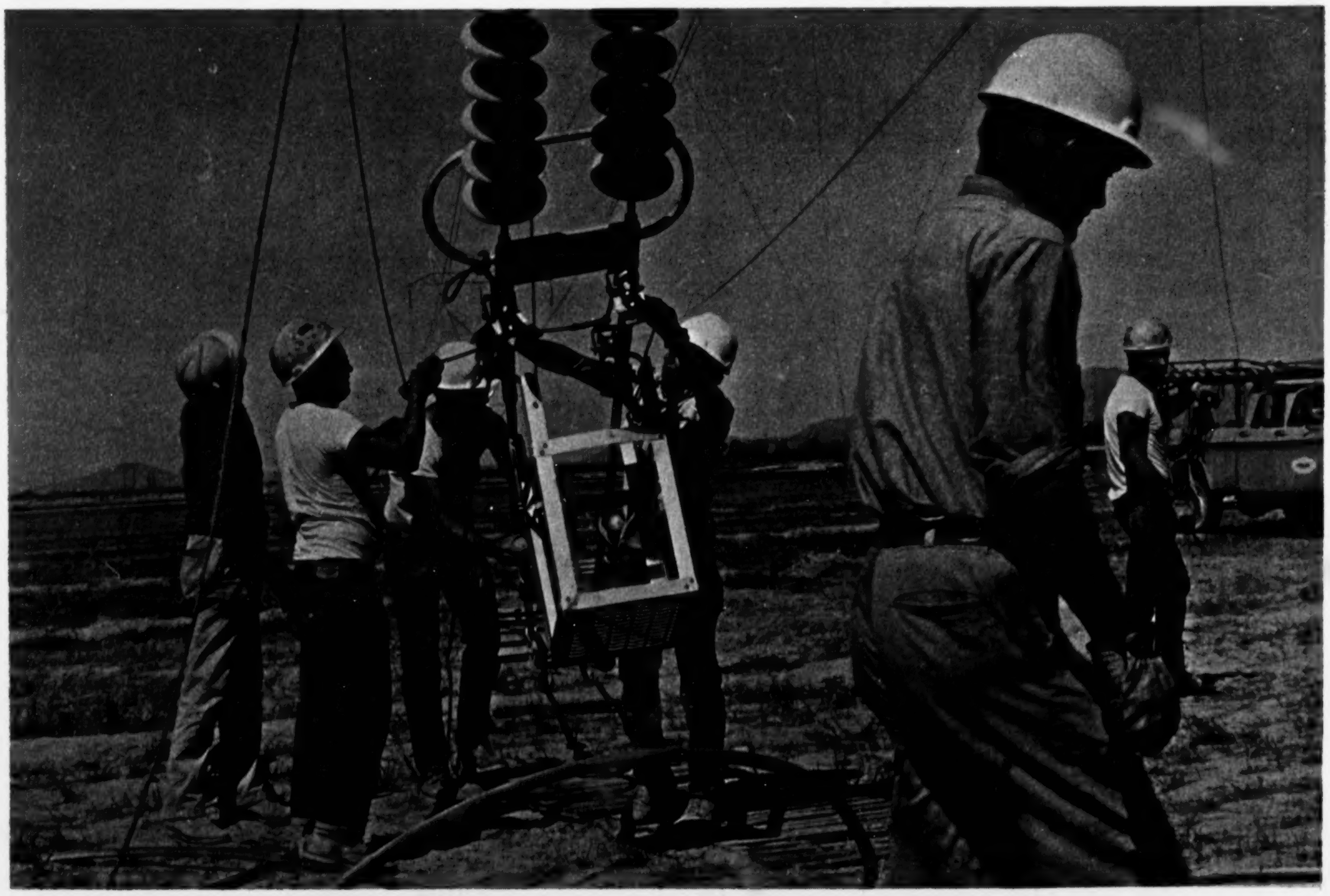
Career education in the schools usually involves the study of many subjects which contribute to a knowledge of the world of work and how to use the variety of skills required in each occupational area. Manpower training is a short range form of career education which ordinarily concentrates on the development of particular skills required for immediate employment. It may be offered for the purpose of retraining persons whose previous employment has been replaced by automation, or to train the unskilled and unemployed for jobs they can become qualified to fill. It frequently includes basic education such as reading, mathematics, and social studies, but for the most part manpower training attempts to provide each trainee with a saleable skill in the shortest time possible.

Many manpower training programs are offered in the public schools, usually at night or in special skill center facilities. Private schools also contribute substantially to the training of persons in a number of specialized occupations such as cosmetology and barbering, office occupations, radio and electronics, and data processing. In recent years the federal government has created numerous training programs for the disadvantaged, beginning with the Manpower Development and Training Act of 1962, then the Office of Economic Opportunity programs which have more recently been transferred to the Department of Labor. The Bureau of Indian Affairs, which operates a complete system of education for reservation Indians both on and off the reservation, includes manpower training programs. The oldest form of manpower training still available today is the apprenticeship program, actually a long term variation of career education including only a part-time relationship with the schools and much more concentration on learning a trade. Most trainees in the manpower programs are adults, but also included are school age dropouts and a number of young people still in school.

With the growing concern in recent years for disadvantaged minority groups, victims of chronic poverty, and other handicapped persons, a major effort has been incorporated into virtually all career education and manpower training to give these persons first priority in the allocation of support funds and the development of new programs. Most of them are adults, but they include students and school dropouts. They also include youth and adults in correctional institutions, the mentally handicapped, and the emotionally disturbed. In many cases disadvantaged and handicapped persons receive career education and training in regular classes with other students but are given special assistance of one kind or another. In most cases they are enrolled in special classes or in programs located in economically depressed areas so that they make up the entire enrollment. Their greatest need is to be able to get jobs which will make them self supporting, to be able to reach the first step on a career ladder which they could not reach before.

Apprenticeship

Skill training before the twentieth century was largely a private arrangement between employer and employee. Apprenticeship programs of one kind or another have been a major source of skilled craftsmen since prehistoric times, and throughout much of the development of western civilization they have been the means not only of training young people for jobs but of handing down the technical knowledge of one generation to the next. The explosion of technical knowledge that accompanied the industrial revolution brought to an end the monopolistic craft guilds within which the apprenticeship system reached its greatest strength. But apprenticeship as a way of learning a skill has never been surpassed, and even in the modern age of pushbutton technology a great many people prepare for their life's work by becoming apprentices.



Apprentice at Work on Power Line

Table 31

Apprenticeship Programs And Enrollments In Arizona By County
July 1, 1969 - June 30, 1970

County	Program	Enrollment
Cochise	Automotive Mechanic	1
	Blacksmith	4
	Boilermaker	9
	Carpenter	1
	Electrician	12
	Ironworker	3
	Machinist	13
	Metalsmith	2
	Painter	1
	Pipefitter-Plumber	4
	Total	50
Coconino	Inside Wireman	10
	Painter-Decorator	5
	Total	15
Greenlee	Automotive Mechanic	2
	Boilermaker	4
	Brick Mason	1
	Carpenter	3
	Electrician	1
	Machinist	6
	Power Lineman	1
	Diesel Locomotive Mechanic	2
	Painter	2
	Pipefitter	3
	Metalsmith	2
	Heavy Duty Mechanic	3
	Total	30
Gila	Boilermaker	11
	Brick Mason	9
	Carman	1
	Carpenter	5
	Electrician	25
	Inside Wireman	8
	Instrument Man	3
	Lead Burner	1
	Machinist	11
	Maintenance-Mechanic	6
	Pipefitter-Plumber	43
	Sheetmetal Worker	2
	Truck Mechanic	1
	Total	126
Maricopa	Asbestos Worker	21
	Automotive Mechanic	22
	Automotive Machinist	14
	Bookbinder	5
	Bricklayer	29
Maricopa (cont'd)	Bus Mechanic	1
	Business Machine Mechanic	9
	Carpenter	514
	Cash Register Serviceman	1
	Cement Mason	131
	Color Cameraman	1
	Composing Room Machinist	24
	Compositor	3
	Dental Technician	1
	Diesel Repairman Mechanic	12
	Dry Well Taper & Finisher	13
	Electric Lineman	29
	Electric Meterman	4
	Elect.Motor Rewind & Repair	21
	Electrician	28
	Electronic Technician	3
	Fitter	1
	Floor Coverer	10
	Glazier	13
	Grade & Paving Equip.Oper.	18
	Heavy Duty Mechanic	20
	Inside Wireman	86
	Instrument Repairman	13
	Iron Worker	90
	Lathers	8
	Lithographers	1
	Machinist	26
	Maintenance	2
	Maint. Carpenter	1
	Maint. Electrician	5
	Maint. Painter	1
	Maint. Plumber	2
	Maint. Refrigeration	1
	Maint. Sheetmetal	1
	Maint. Steamfitter	1
	Metal Fabricator	4
	Millwright	23
	Newspaper Web Pressman	9
	Offset Printer	1
	Operating Engineer	11
	Orthotist	2
	Painter	1
	Painter-Decorator	30
	Photo Engraver	1
	Plant Equip. Operator	8
	Plaster	17
	Plumber	22
	Power Lineman	23
	Pressmen	26
	Prosthetist	1

Table 31 (Cont'd)

County	Program	Enroll-ment
Maricopa (cont'd)	Refrigeration	6
	Relaymen	7
	Roofing	10
	Sheet Metal	100
	Sign Electrician	100
	Stationary Engineer	6
	Steamfitter-Pipefitter	1
	Stone Mason	28
	Tilesetter	4
	Tool & Die	15
	Truck Mechanic	1
	Universal Operator	7
	Utility Lineman	24
	Automotive Front End	244
	Automotive Mechanic	
	Automotive Painter	
	Automotive Serivce Spec.	
	Binderyman	
	Body & Fender Mechanic	
	Cylinder Letter Pressman	
	Offset Pressman	
	Offset Preparatory Worker	
	Photo Engraver	
	Pipefitter-Refrigeration	
	Plumber	
	Pressmen	
	Steamfitter	
	Sterotyper	
	Total	1,702
Mohave	Electrician	5
	Total	5

County	Program	Enroll-ment
Pima	Blacksmith	1
	Boilermaker	4
	Bricklayer	27
	Carpenter	3
	Electricians	28
	Floor Coverer	10
	Glazier	1
	Machinist	6
	Metalsmith	2
	Ophtolmic Finishers	1
	Painter-Decorator	30
	Pipefitter-Plumber	1
	Roofing	9
	Sheetmetal	25
	Truck Mechanic	20
	Inside Wireman	80
	Maint. Electrician	
	Motor Rewind & Repair	
	Photo Engraver	
	Plumber	
	Power Lineman	
	Pressmen	
	Refrigeration	
	Sign Apprentice	
	Sing Tube Binder	
	Steamfitter	
	Sterotyper	
	Total	248
Pinal	Electricians	15
	Total	15
State Total		2,191

Data supplied by Arizona State Employment Apprentice Information Center

Construction Apprentice

Table 32

Summary Of Apprenticeship Training In Arizona
July 1, 1969 - June 30, 1970

Program	Enrollment	Program	Enrollment
Asbestos Worker	21	Metal Fabricator	4
Automotive Mechanic	25	Metalsmith	6
Automotive Machinist	14	Millwright	23
Blacksmith	5	Newspaper Web Pressman	9
Boilermaker	526	Offset Printer	1
Bookbinder	5	Operating Engineer	11
Bricklayer	56	Ophthalmic Finishers	1
Brick Mason	10	Orthotist	2
Bus Mechanic	1	Painter	4
Business Machine Mechanic	9	Painter-Decorator	65
Carman	1	Photo Engraver	1
Carpenter	12	Pipefitter-Plumber	51
Cash Register Serviceman	1	Plant Equip. Operator	8
Cement Mason	131	Plastering	17
Color Cameraman	1	Plumbers	22
Composing Room Machinist	24	Power Lineman	24
Compositor	3	Pressman	26
Dental Technician	1	Prosthetist	1
Diesel Locomotive Mechanic	2	Refrigeration	6
Diesel Repairman	12	Relayman	7
Dry Well Taper & Finisher	13	Roofer	19
Electric Lineman	29	Sheetmetal Worker	127
Electric Meterman	4	Sign Electrician	6
Electric Motor Rewind & Repair	21	Stationary Engineer	1
Electrician	114	Steamfitter-Pipefitter	6
Electronic Technician	3	Stone Mason	28
Fitter	1	Tilesetter	4
Floor Covering	23	Tool & Die	15
Glazier	14	Truck Mechanic	22
Grade & Paving Equip. Operator	18	Universal Operator	7
Heavy Duty Mechanic	20	Utility Lineman	24
Inside Wireman	104		
Instrument Repairman	16	Automotive Services	324
Iron Worker	93	Binderyman	
Lathers	8	Inside Wireman	
Lead Burner	1	Maintenance Electrician	
Lithographers	1	Motor Rewind & Repair	
Machinist	62	Offset	
Maintenance	2	Photo Engraver	
Maint. Carpenter	1	Plumber	
Maint. Electrician	5	Power Lineman	
Maint. Mechanic	1	Pressman	
Maint. Painter	1	Pipefitter	
Maint. Plumber	2	Refrigeration	
Maint. Refrigeration	1	Sign Men	
Maint. Sheetmetal	1	Steamfitter	
Maint. Steamfitter	1	Sterotyper	
		Total	2,191

Data supplied by Arizona State Employment Apprentice Information Center

Apprentice programs have been institutionalized in modern times in a somewhat different pattern than they were in medieval craft guilds. Now we have publicly supported apprenticeship councils, and in many cases the programs themselves are tied in with the public school system to provide supporting education. But they are still essentially training programs in which the student learns from an experienced craftsman in a ratio of one-to-one. This one-to-one ratio is both the major strength of the apprenticeship program and its greatest weakness in modern times. For more than a century in America, and longer than that in Europe, both technical knowledge and the demand for skilled workers have multiplied at a far greater rate than could be supplied by the one-to-one ratio of apprenticeship training. It will probably always remain as an important but not a major source of skilled manpower. It will remain because nothing can take its place as the best means of passing on the skills and knowledge of a master craftsman to a young learner. It will remain largely in those areas, however, where technical knowledge and employment demand are most stable. Even here, when the greater efficiency of class instruction overcomes the advantages of personal instruction, the number of apprentices compared to other kinds of trainees will decline.

This is the situation in Arizona as it is in all other states. Table 31 lists the apprenticeship programs in each county at the present time and the number of apprentices in each. Table 32 is a Statewide summary of apprenticeship training in Arizona.

Adult Vocational Education

With training facilities, equipment and instructional personnel in the public schools for teaching vocational education, it is a matter of simple economics if nothing else to use these resources for training adults as well. In addition to the need for initial training or retraining for new occupations, a growing number of adults require training to upgrade or supplement their skills. Adult vocational education programs offered by the schools and supported by federal and state funds are of two kinds: Adult preparatory for those going into new occupations, and adult supplemental for those adding to the skills required in their present occupations. Table 33 lists both preparatory and supplementary programs in each county by occupation (OE Code) and the number of enrollments in each. Table 34 is a summary of adult vocational education for the entire state.

Adult Education Class at Maricopa Technical College, Phoenix

Table 33

Adult Education in Arizona by County
July 1, 1969 - June 30, 1970

County	Program	Enrollment
Apache	Other Automotive	1
	Total	1
Cochise	Agri. Mechanics	33
	General Merchandise	1
	Other Distrib. Ed.	1
	Filing	4
	Stenographic	22
	Supervisory	1
	Typing	1
	Other Office	18
	Electronic Tech.	1
	Drafting Tech.	1
	Welding Technology	52
	Aircraft Technology	6
	Machine Shop	15
	Welding	43
	Law Enforcement	2
	Other Public Service	9
	Other Trade & Ind.	3
	Unidentified Occup.	1
	Total	214
Coconino	Food Service	35
	Management	901
	Marketing	1
	Real Estate	42
	Food Management	22
	Filing	16
	Typing	53
	Unidentified Occup.	1
	Total	1,071
Gila	Other Trade & Ind.	44
	Unidentified Occup.	1
	Total	45
Graham	Ornamental Horticul.	14
	General Merchandise	2
	Retail	1
	Other D.E.	1
	Filing	3
	Stenographic	9
	Eng. Tech.	1
	Auto. Tech.	5
	Electronic Tech.	1
	Ind. Tech.	14
	Data Process. Tech.	7
	Other Technology	23
	Unidentified Occup.	59
	Total	140
Greenlee	None	0
	Total	0
Maricopa	Agri. Production	1
	Agri. Mechanics	33
	Advertising	81
	Finance & Credit	399
	Food Services	15
	General Merchandise	88
	Hotel & Motel	36
	Insurance	200
	Management	2,114
	Marketing	223
	Mid-Management	19
	Real Estate	643
	Retail	85
	Other D.E.	166
	Dental Assistant	252
	Medical Services	129
	Nurse Aide	51
	Lic. Practical Nurse	22
	X-Ray	10
	Other Health	93
	Child Care	92
	Food Management	67
	Institutions	24
	Other Home Ec.	6
	Accounting	193
	Business Data Process.	105
	Filing	304
	Personnel	124
	Stenographic	1,144
	Supervisory	252
	Typing	303
	Eng. Tech.	198
	Elec. Tech.	22
	Electronic Tech.	1,122
	Ind. Tech.	90
	Mech. Tech.	32
	Data Process. Tech.	1,173
	Drafting Tech.	503
	Other Tech.	271
	Air Conditioning	48
	Appliances	39
	Body & Fender	5
	Mechanics	319
	Specialization	103
	Other Auto	96
	Aircraft Maint.	8
	Blueprint	495
	Business Machines	20

Table 33 (cont'd)

County	Program	Enrollment
Maricopa (cont'd)	Commercial Art	5
	Commercial Photo	11
	Carpentry	555
	Electric	490
	Heavy Equipment	10
	Masonry	158
	Painting & Decor.	108
	Plastering	179
	Plumbing	233
	Other Construction	164
	Diesel	54
	Drafting	36
	Electrical	38
	Lineman	13
	Other Electric	64
	Industry	1
	Radio/TV	7
	Foremanship	54
	Graphic Arts	246
	Machine Shop	105
	Sheet Metal	82
	Welding	195
	Cosmetology	60
	Pub. Serv.	59
	Fireman	168
	Law Enforcement	1,186
	Other Pub. Serv.	34
	Cook/Chef	8
	Waiter/Waitress	7
	Refrigeration	182
	Small Eng. Repair	16
	Other Stat. Energy	3
	Upholstering	26
	Millwork	33
	Other Trade & Ind.	52
	Unidentified Occup.	8
	Total	16,308
Mohave	Unidentified Occup.	1
	Total	1
Navajo	Agri. Mechanics	18
	Filing	56
	Unidentified Occup.	1
	Total	75
Pima	Other Agriculture	1
	Horticulture	23
	Finance & Credit	234
	Food Distribution	130
	Foreign	23
	General Merchandise	1
	Management	513
	Marketing	74

County	Program	Enrollment
Pima (cont'd)	Mid-Management	223
	Real Estate	255
	Retail	123
	Other D.E.	539
	Nurse Aide	11
	Lic. Practical Nurse	73
	Inhalation	220
	Other Health	95
	Other H.E.	2
	Business Data Process.	67
	Filing	79
	Info. & Commun.	13
	Personnel	113
	Stenographic	211
	Supervisory	54
	Typing	106
	Electronic Tech.	97
	Data Process. Tech.	91
	Mechanics	140
	Aircraft Ground	15
	Carpentry	175
	Electric	89
	Heavy Equipment	30
	Masonry	76
	Paint & Decor.	54
	Plumbing	89
	Other Construction	184
	Drafting	28
	Other Electronics	20
	Graphic Arts	44
	Machine Shop	23
	Sheet Metal	56
	Welding	88
	Refrigeration	87
	Upholstering	43
	Unidentified Occup.	2
	Total	4,614
Pinal	Agri. Production	3
	Horticulture	1
	Other Agriculture	1
	Mid-Management	9
	Lic. Practical Nurse	14
	Accounting	7
	Business Data Process.	3
	Filing	19
	Stenographic	3
	Supervisory	1
	Typing	16
	Other Office	1
	Eng. Tech.	1
	Auto. Tech.	71
	Civil Tech.	2
	Electronic Tech.	6

Table 33 (cont'd)

County	Program	Enrollment
Pinal (cont'd)	Ind.	2
	Mech. Tech.	2
	Drafting Tech.	21
	Welding Tech.	177
	Other Tech.	28
	Other Auto	13
	Electric	19
	Heavy Equipment	17
	Diesel	16
	Drafting	18
	Foremanship	17
	Sheet Metal	17
	Welding	1
	Fireman	13
	Law Enforcement	15
	Small Eng. Repair	29
	Other Trade & Ind.	50
	Unidentified Occup.	1
	Total	615
Santa Cruz	None	0
	Total	0
Yavapai	Forestry	1
	Marketing	14
	Mid-Management	9
	Real Estate	19
	Accounting	8
	Business Data Process.	22
	Filing	2
	Stenographic	57
	Supervisory	6
	Typing	15
	Other Office	17
	Auto Tech.	85
	Electronic Tech.	5
	Mech. Tech.	6
	Metal Tech.	1
	Data Process. Tech.	71
	Drafting Tech.	17
	Welding Tech.	16
	Other Trade & Ind.	1
	Unidentified Occup.	1
	Total	375
Yuma	Agri. Production	10
	Agri. Supplies	1
	Agri. Mechanics	17
	Agri. Products	3
	Horticulture	2
	Other Agri.	9
	Finance & Credit	1
	Home Furnishings	1
	Management	3
	Marketing	3
	Mid-Management	6
	Real Estate	1
	Wholesale	1
	Dental Services	11
	Nurse's Aide	10
	Other Health	20
	Child Care	3
	Food Management	17
	Other H.E.	3
	Accounting	2
	Business Data Process.	7
	Filing	8
	Info. & Commun.	12
	Personnel	1
	Stenographic	24
	Supervisory	2
	Typing	27
	Other Office	4
	Auto Tech.	22
	Electronic Tech.	1
	Data Process. Tech.	79
	Drafting Tech.	9
	Welding Tech.	9
	Other Tech.	1
	Air Conditioning	47
	Blueprint	8
	Welding	10
	Law Enforcement	114
	Other Trade & Ind.	33
	Total	542
	State Total	24,001*

* Total does not include additional 1,646 Special Needs. See Special Needs Table 26, page 53.

Data supplied by RCU Data Systems Division

Table 34

Summary of Adult Vocational Education in Arizona by Program
July 1, 1969 - June 30, 1970

Program	Enrollment
Accounting	210
Advertising	81
Agriculture Mechanics	182
Agricultural Production	14
Agricultural Products	3
Agricultural Supplies	1
Air Conditioning	95
Aircraft	8
Aircraft Operations	15
Aircraft Technology	6
Appliances	39
Automotive Specialization	103
Automotive Technology	191
Blueprint	503
Body & Fender	5
Business Data Processing	204
Business Machine Services	20
Carpentry	730
Child Care	95
Civil Technology	2
Commercial Art	5
Commercial Photo	11
Cook/Chef	8
Cosmetology	60
Data Processing Technology	1,421
Dental Assistants	25
Dental Services	11
Diesel Mechanics	70
Drafting	83
Drafting Technology	550
Electricity	598
Electrical Technology	22
Electronic Technology	1,233
Engineering Technology	200
Filing & Clerical	491
Finance & Credit	634
Fireman	181
Food Distribution	130
Food Management	106
Food Services	50
Foreign Trade	23
Foremanship	138
Forestry	71
General Merchandise	92
Graphic Arts	290
Heavy Duty Equipment	57
Home Furnishings	1
Horticulture	40
Hotel & Motel	36
Industrial Electricity	102
Industrial Technology	107
Information & Communications	25
Inhalation Therapist	120
Institutional Management	24
Insurance	200
Law Enforcement	1,317
Licensed Practical Nurse	109
Lineman	13
Machine Shop	143
Management	3,531
Marketing	315
Masonry	234
Mechanics	444
Mechanical Tech.	110
Medical Services	129
Metal Technology	1
Mid-Management	267
Millwork	33
Nurse's Aide	156
Other Agriculture	11
Other Auto	110
Other Construction	348
Other Distributive	707
Other Electronics	20
Other Gainful Home Economics	11
Other Health Services	208
Other Office Occupations	40
Other Technical	323
Other Trade & Industry	183
Painting & Decorating	162
Personnel	237
Plastering	179
Plumbing	322
Public Service	43
Radio & TV	7
Real Estate	960
Refrigeration	269
Retail	209
Sheet Metal	155
Small Engine Repair	45
Stenographic	1,470
Supervisory	316
Typing	521
Upholstering	69
Waiter/Waitress	7
Welding	353
Welding Technology	183
Wholesaling	1
X-Ray Technician	10
Unidentified Occup.	75
Total	24,001*

*See footnote to Table 33.
Data supplied by RCU Data Systems Division

MDTA Programs

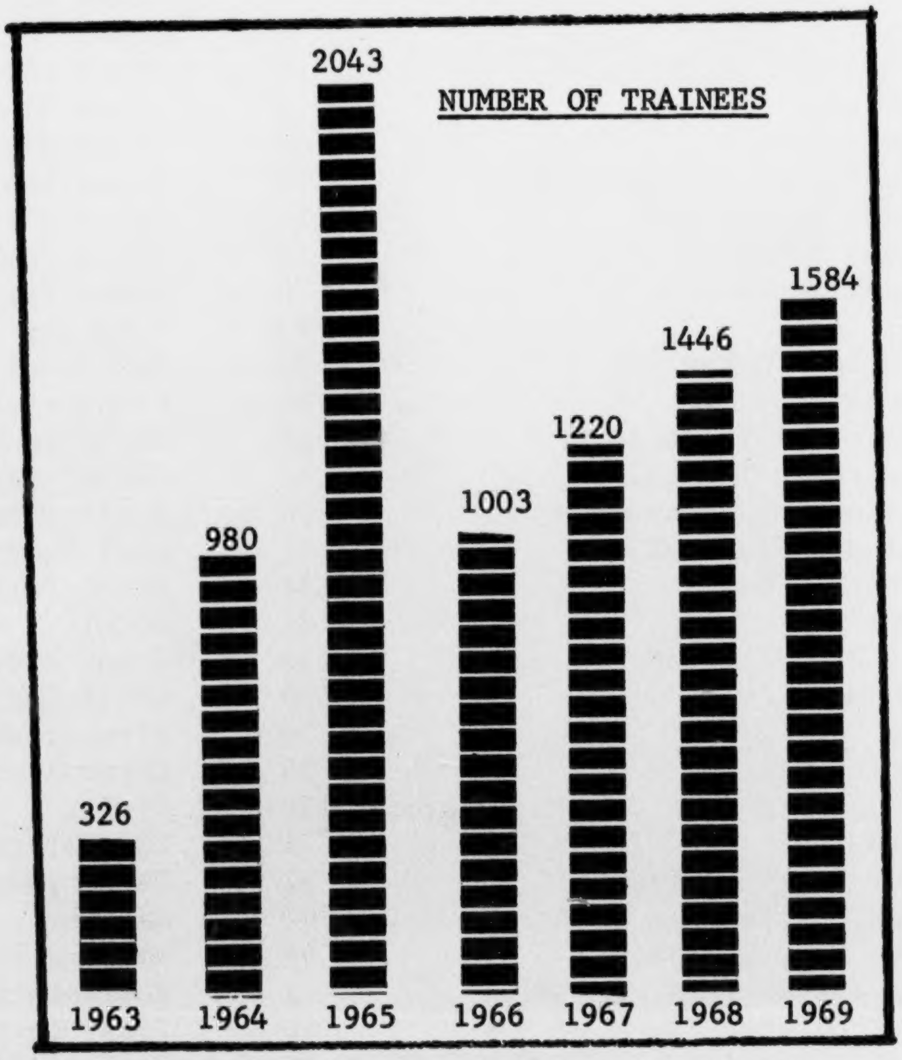
One of the newest developments in skill training in the United States is a product of both rapid technological advancement in industry and an unprecedented concern for the victims of economic misfortune. The Manpower Development Training Act was passed by Congress in 1962 when the nation's unemployment rate was 5 1/2% in spite of national prosperity and a strong economy. It was passed as an effort to help the victims of automation upgrade their skills or learn new ones in order to keep up with advancing technology. By 1965 its objectives had been broadened to include anyone who needed training or retraining to get a job, even those who had never worked. The nature of the program changed to include basic education for those who lacked such essentials as reading ability and a knowledge of the world of work. By 1968 the proportion of those in the broader programs for economically and socially disadvantaged to those in single skill programs was 35% to 65%. The significance of this need for basic education as an integral part of skill training can hardly be overlooked.

In 1969 more than 1,500 people were given training in MDTA programs in Arizona, and since these programs were first established in 1963 there have been 8,600 trainees.

The excessive figure in 1965 was a result of the agricultural training program for farm laborers in up-graded agricultural skills. This program was dropped in 1966 with a corresponding drop in enrollments. However, with better equipment, open exit programs, and cluster training it has been easier to train and place more people at less cost and the number of enrollees has increased each year since 1966.

Table 35

MDTA Institutional Trainee Enrollment Pattern
1963 - 1969



Data supplied by State Department of Vocational Education Manpower Development & Training

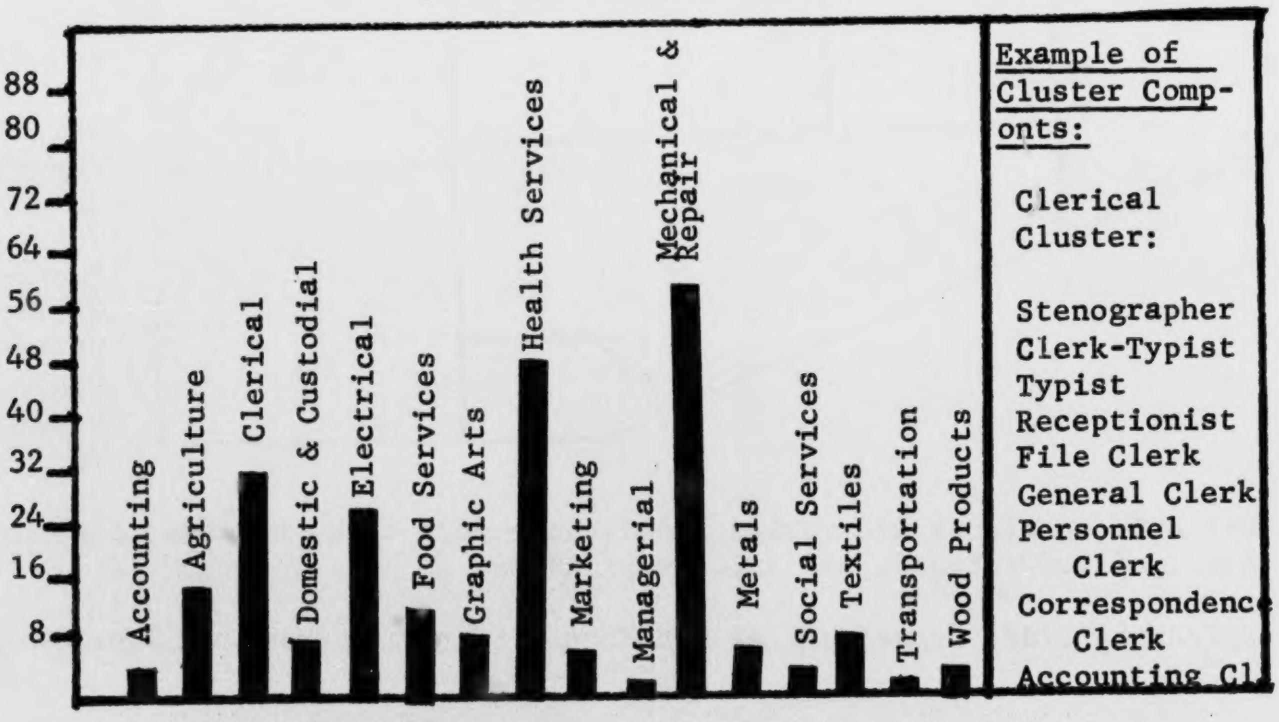
A basic requirement in setting up any MDTA program is certification by the State Employment Service that jobs are going to be available for those trained. The two leading fields, or clusters as they are called, in Arizona are mechanical and repair (one cluster) and health services. There are sixteen clusters altogether, each containing any number of related skill occupations. Figure 36 shows the relative emphasis in MDTA programs in Arizona since 1963.

As a new concept of purposes never before undertaken on a national scale, MDTA is unique in many respects. It is a multi-agency undertaking at the federal and state levels. MDTA's one purpose is instructional, and this is the responsibility of the U.S. Office of Education and the State Department of Vocational Education. But since another unique feature of MDTA is that its students do not ordinarily seek the program but the program must seek them, the Department of Labor and the State Employment agencies play a major role. They identify the need for manpower and the individuals who need training, recruit the trainees, and carry on a certain amount of followup activity.

Programs are normally established to serve group needs but individual needs are constantly being met through referrals to group programs wherever they might be available. These include on-going classes in public and private schools. In this way people living in small communities or isolated areas receive benefits under the Act.

Table 36

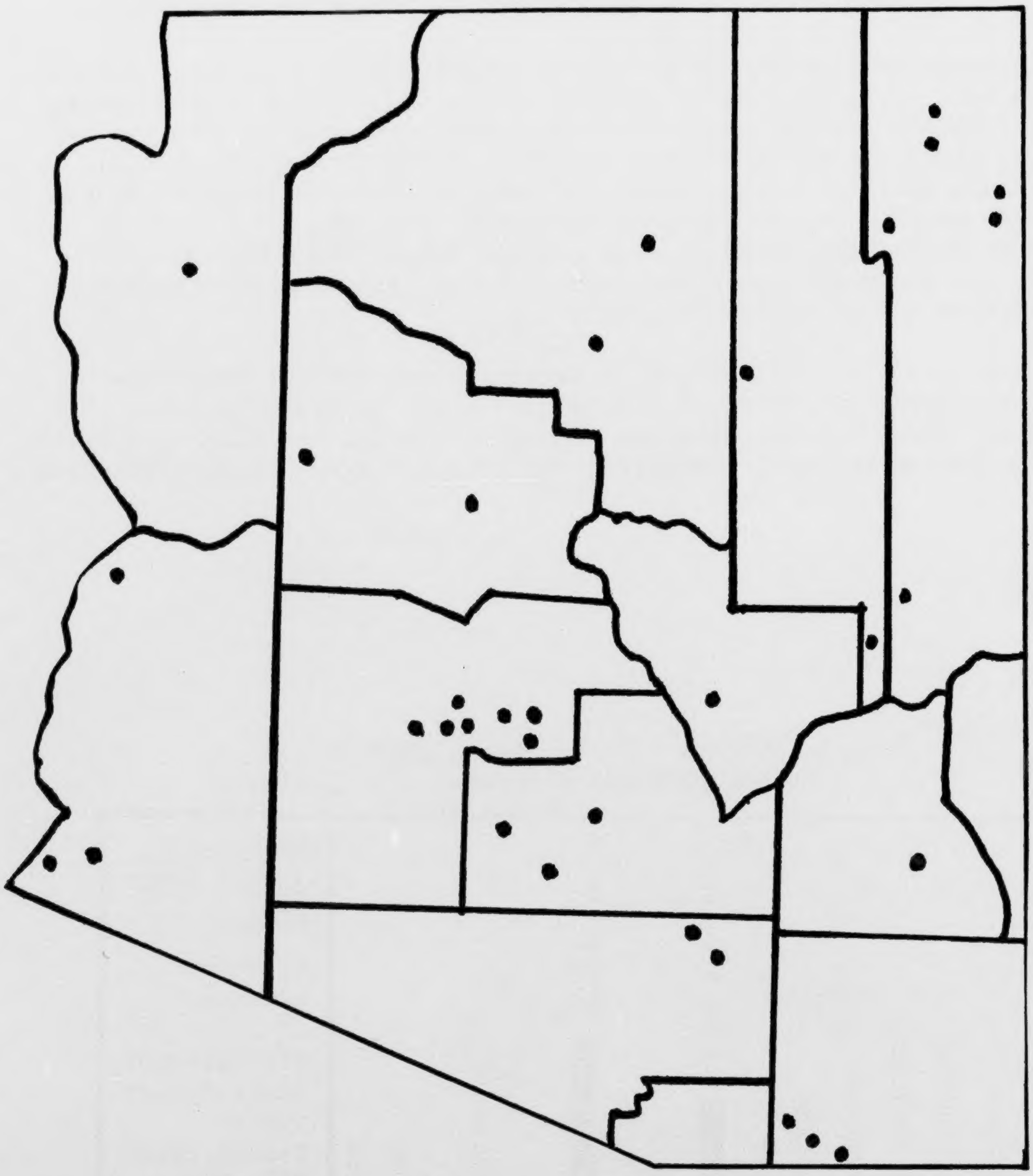
Types of MDTA Training Since 1963
By Occupational Clusters



Data supplied by State Department of Vocational Education
Manpower Development & Training

Table 37

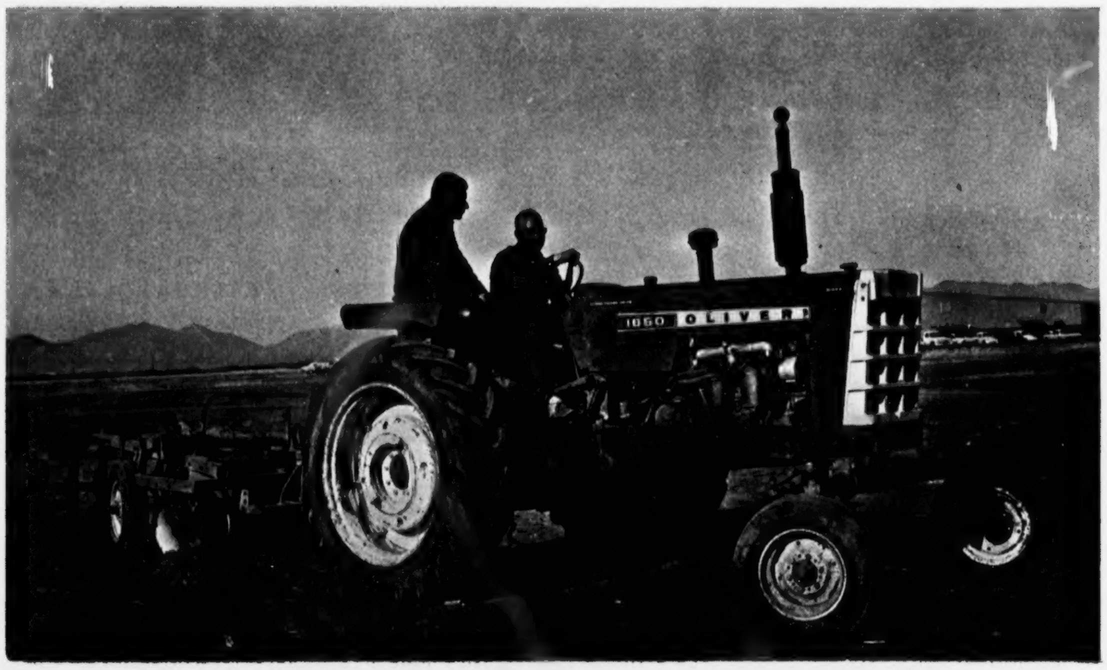
MDTA Programs Scope in Terms of Geographical Coverage



- Avondale
- Bagdad
- Buckeye
- Casa Grande
- Chandler
- Chinle
- Douglas-Bisbee
- El Mirage-Dysart
- Eloy
- Flagstaff
- Florence-Prison
- Fort Defiance
- Fort Huachuca
- Glendale
- Globe
- Goodyear
- Hunters Point
- Kingman
- Mc Nary
- Many Farms
- Marana
- Mesa
- Parker
- Phoenix
- Prescott
- Safford
- San Carlos
- Scottsdale
- Stanfield
- Steamboat
- Tempe
- Tuba City
- Tucson
- Wellton
- Whiteriver
- Window Rock
- Winslow
- Yuma

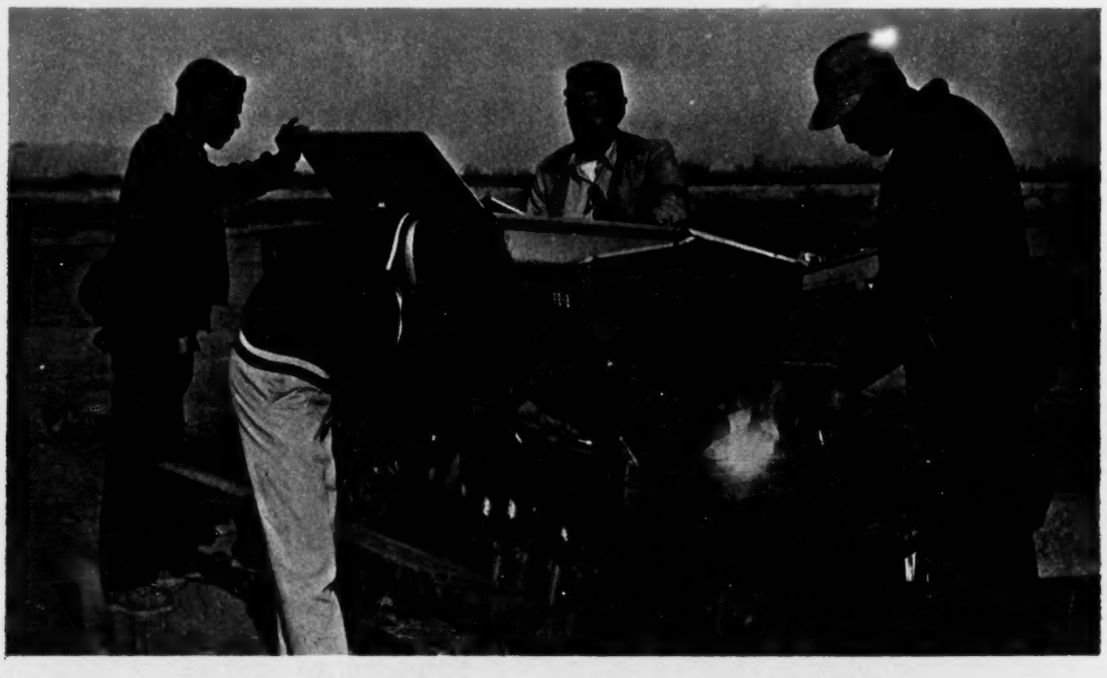
Statewide projects are varied and include part-time, upgrade, regular, youth, adult, disadvantaged, and private programs.

Data supplied by State Department of Vocational Education Manpower Development & Training



Equipment is usually excess and government
surplus property.

Another unique feature developed by MDTA and now becoming a permanent addition to sponsoring educational institutions in many communities is the skill center. These are centralized, self-contained facilities operating on a continuous prime-time basis, generally under public supervision or control, and especially designed to provide institutional training, guidance and counseling, and supportive services. There are over sixty of these centers at the present time in the United States, two of them in Arizona, in which almost every conceivable technical, vocational and semi-professional occupation and skill are being taught. They also offer classes in basic education.



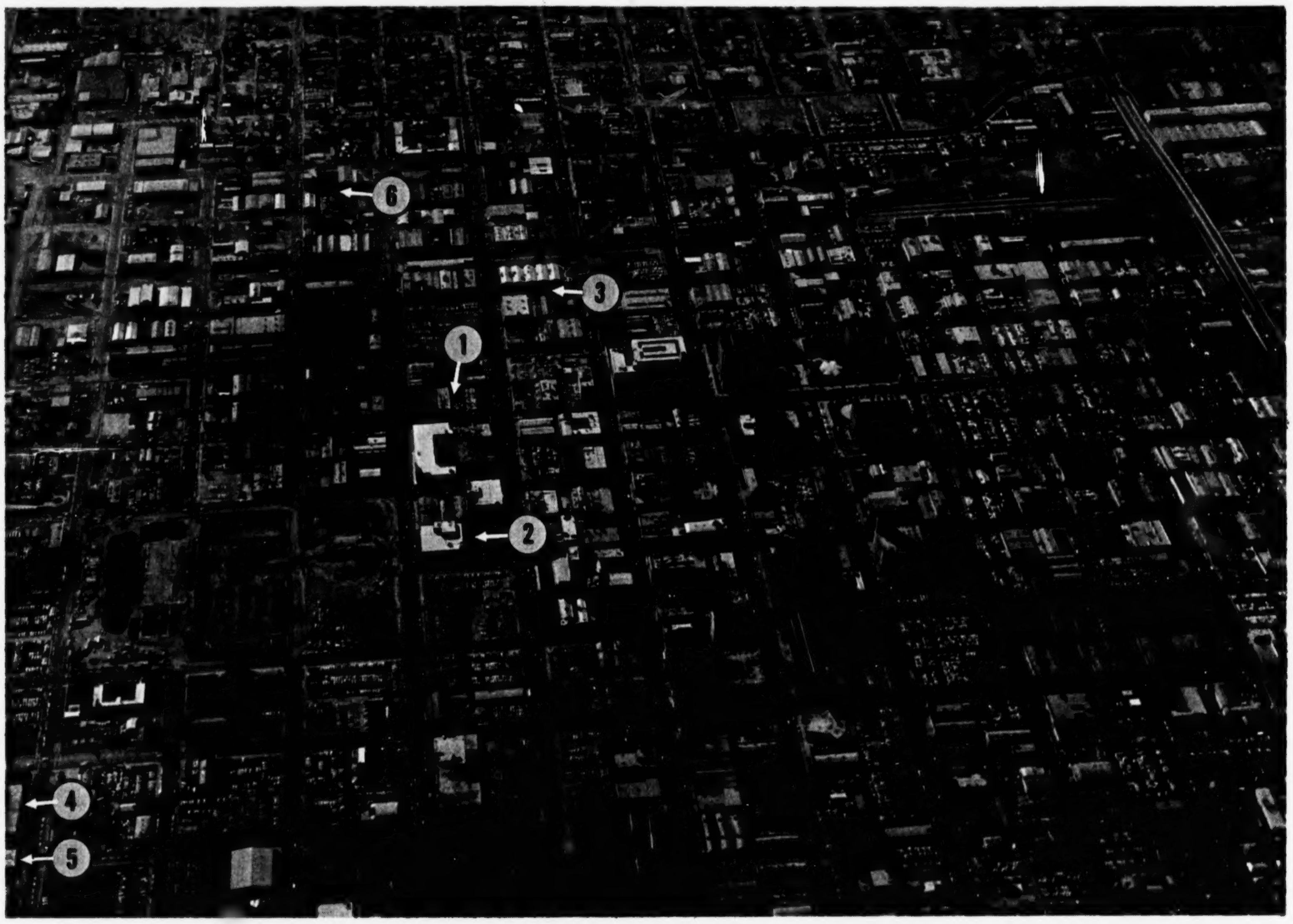
Most MDTA instructors are recruited from
business and industry.

Skill centers are often established in old warehouses, factories, surplus military installations and quonset huts. Instructors may be former mechanics, journeymen and artisans as well as teachers from public and private schools in the community. Equipment is usually excess and surplus government property and very often includes the latest and most sophisticated instructional devices in electronics, auto mechanics, welding, machine shops, business, health occupations and reading. The photographs on pages 76 and 77 show the location of Arizona's two MDTA skill centers in Phoenix and Tucson. Five more are under development through the assistance of the State Department of Vocational Education and the Four Corners Regional Commission. These are in Kingman, Clarkdale, Winslow, Miami and Sacaton.

Tucson Skill Center

Located in a former Sears & Roebuck building in downtown Tucson. Three hundred and five students from the surrounding area received training in twenty-two program clusters in an average day. In addition to the MDTA programs, the building is also utilized for training programs by WIN, Adult Basic Education, Mainstream, Health Service Training Programs and evening Adult Classes.

Not shown in the photo, but also major sources of career training are: Tucson High School Vocational Training Center, Tucson High School Adult Training Center, and the Needletrades Training Center at Park and Broadway.



Skill and Training Centers in Phoenix

1. MDTA Skill Center at 246 S. First Street operated by the Maricopa County Junior College District and the State Department of Vocational Education.

2. Maricopa Technical College, the downtown campus of the Maricopa County Junior College District.

3. Phoenix O.I.C., a private self-help agency primarily for minority groups utilizing federal funds under the O.E.O. program.

4. Phoenix Union High School District Area Vocational School (located just outside the picture).

5. Phoenix Union High School Adult Vocational Center (just outside the picture).

6. Phoenix Residential Skill Center, operated by Packard Bell under a federally supported contract program.

7. Phoenix Needletrades Skill Center sponsored by the State Department of Vocational Education.

MANPOWER DEVELOPMENT TRAINING

THE RELATIONSHIP OF GOVERNMENTAL AGENCIES

Table 38

THE FUNCTIONAL ORGANIZATION FOR MDTA INSTITUTIONAL PROGRAMS

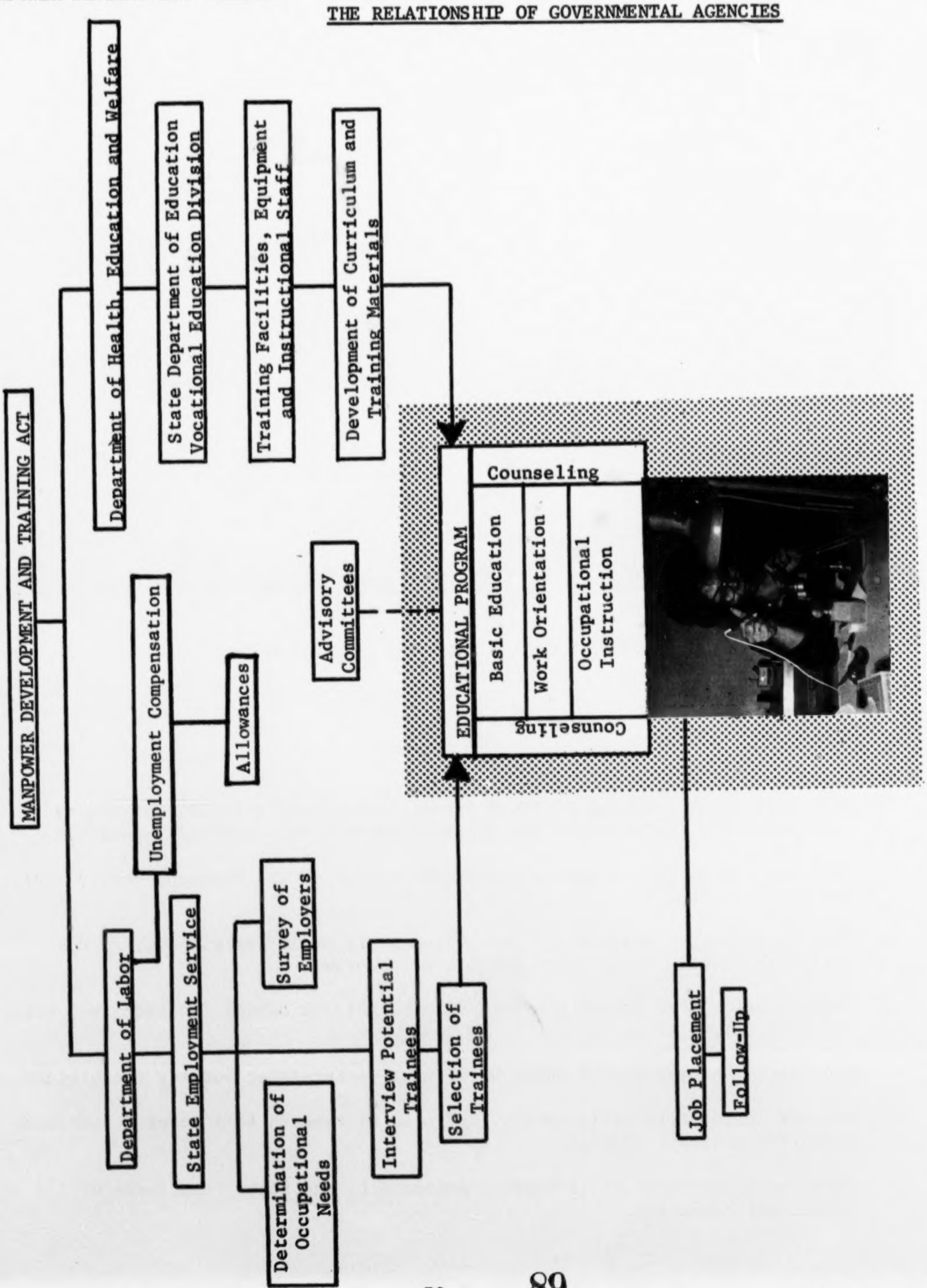
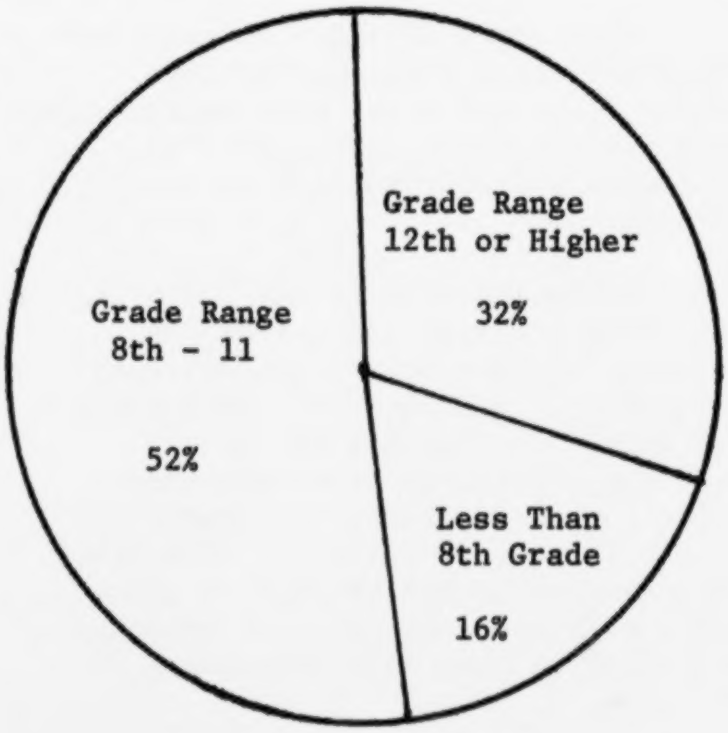
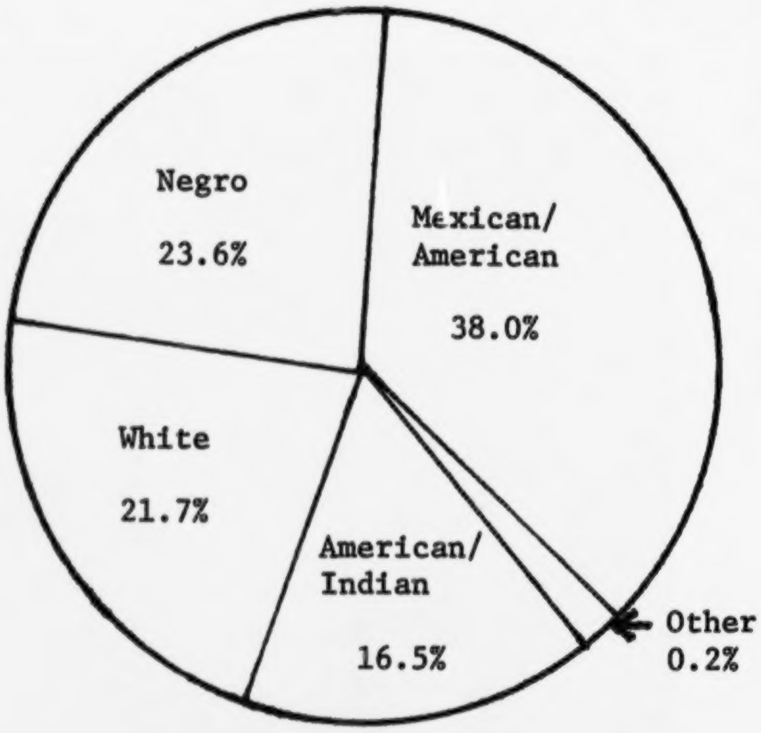

MANPOWER DEVELOPMENT AND TRAINING ACT
Department of Health, Education and Welfare
State Department of Education Vocational Education Division
Training Facilities, Equipment and Instructional Staff
Development of Curriculum and Training Materials
Department of Labor
Unemployment Compensation
Allowances
State Employment Service
Survey of Employers
Determination of Occupational Needs
Interview Potential Trainees
Selection of Trainees
Advisory Committees
EDUCATIONAL PROGRAM
Counseling
Basic Education
Work Orientation
Occupational Instruction
Counseling
Job Placement
Follow-Up

Table 39

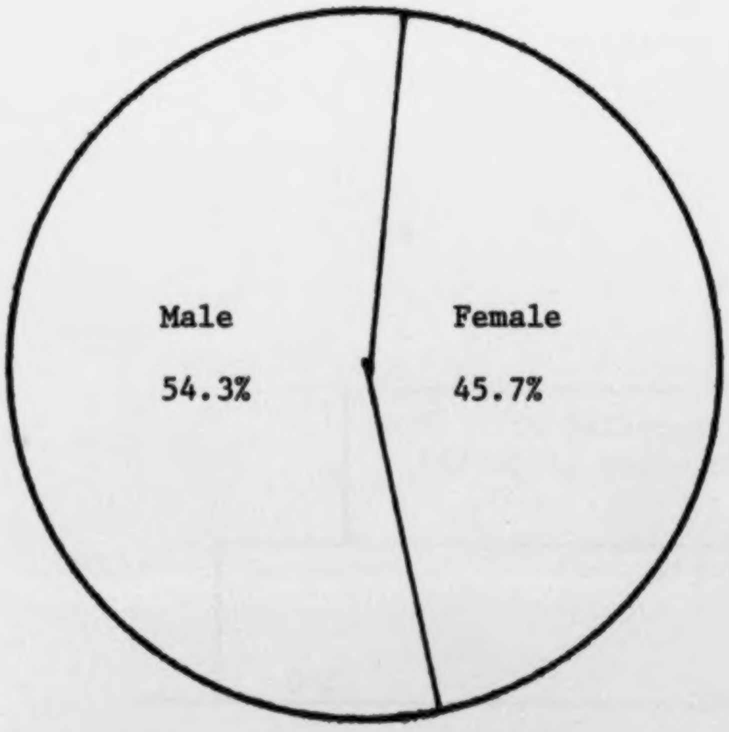


Previous Educational Attainment of Trainees

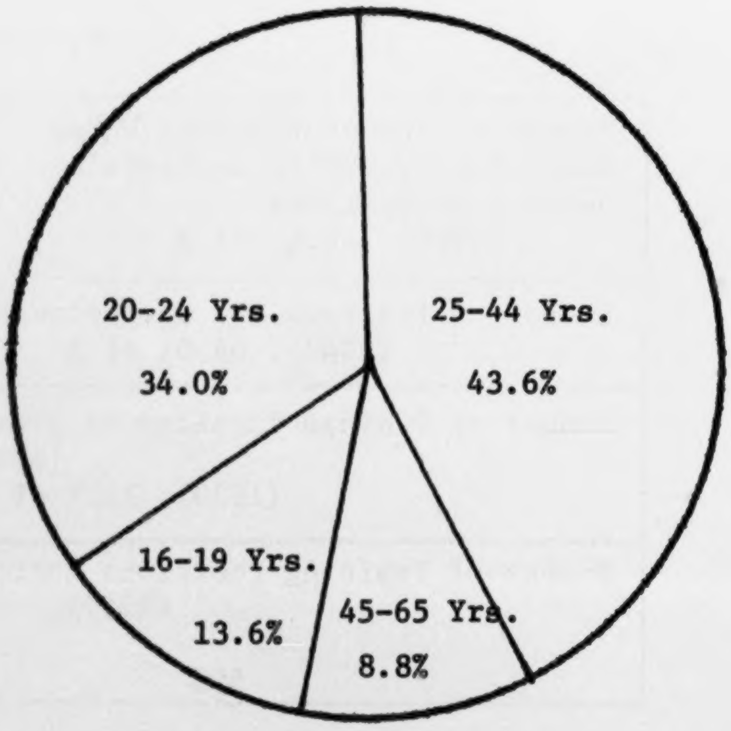


Ethnic Group of MDTA Trainees

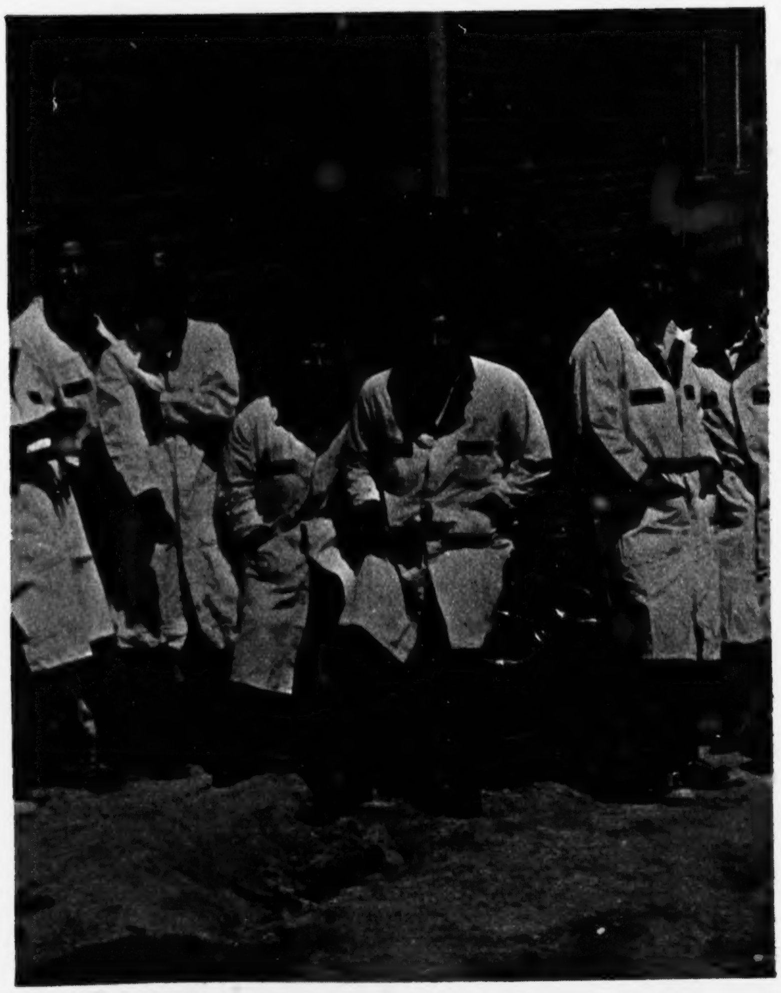
The MDTA program is directed primarily toward disadvantaged, minority group persons who have previously experienced failure in public school systems. A review of the characteristics of trainees that were enrolled in projects for the fiscal year of 1969 indicates that 60% of the trainees were high school dropouts. Seventy-eight percent of the trainees were from minority groups. Approximately 48% were less than 25 years of age; and approximately 54% were male.



Sex of MDTA Trainees



Age of MDTA Trainees



Former MDTA trainee on job after completing program.

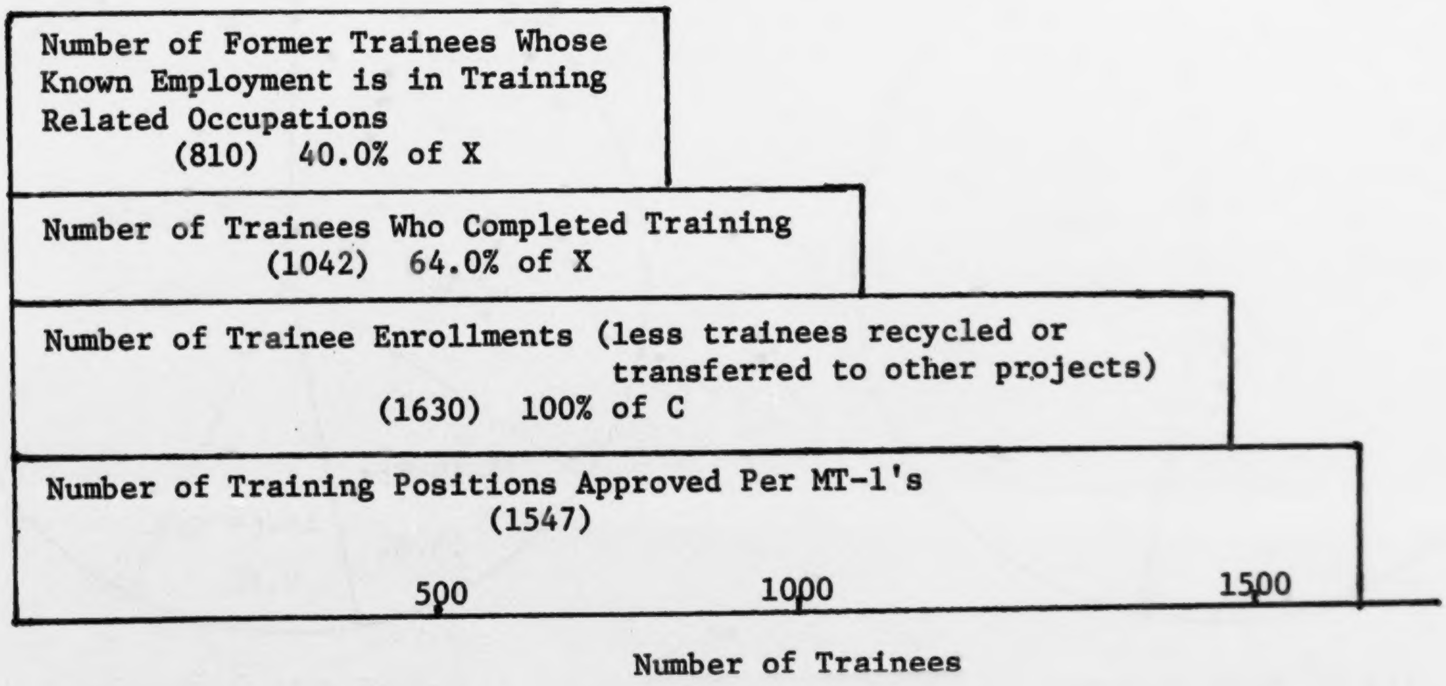
There is a definite cohesiveness between the state MDTA institutional training staff and local MDTA supervisors throughout the state. This permits cooperation and coordination in the total MDTA effort.

As can be seen in the following chart, MDTA programs in Arizona have been fairly successful in the delivery of educational services to a relatively large number of trainees in the past year. The percentage of completers, and the success factor of placement of completers, compare favorably with other institutions of learning such as technical institutes and community colleges where students have more advantages to begin with.

Table 40 illustrates the trainee enrollment/employment data from Arizona MDTA institutional training projects completed in FY 1969. Communication skills and employment orientation projects are not included. Projects which are included are regular, part-time, up-grade, disadvantaged, youth, adult, private projects, CEP, SUN/SER, and training projects.

Table 40

Followup of MDTA Trainees



Data supplied by State Department of Vocational Education Manpower Development & Training

Table 41

MDTA Programs And Enrollments In Arizona By County
July 1, 1969 - June 30, 1970

County	Program	Enrollment
Apache	Basic Education	252
	Bookkeeping	12
	Clerical	55
	Electronic Assembler	338
	Logger	22
	Orientation	381
	Total	1,060
Cochise	Clerical	22
	Cosmetology	5
	Farm Equip. Operator	27
	Total	54
Coconino	Clerical	25
	Cosmetology	1
	Total	26
Gila	Auto Mechanic	33
	Total	33
Maricopa	Agriculture	23
	Air Conditioning	2
	Aircraft Mechanic	61
	Auto Mechanic	205
	Barber	9
	Basic Education	541
	Bookkeeping	2
	Clerical	260
	Cooperative Education	20
	Cosmetology	54
	Culinary	72
	Diesel Mechanic	1
	Diesel Truck Driver	10
	Draftsman	31
	Electronic Worker	226
Maricopa (cont'd)	Health Services	132
	Key Punch Operator	7
	Machine Tool Operator	60
	Manager Trainee	12
	Metal Fabricator	21
	Office Machines	7
	Offset Printing	1
	PBX-Receptionist	4
	Programmer	6
	Sales Clerk	81
	Welding	24
	Total	1,872
Navajo	Service Machine	2
	Total	2
Pima	Auto Mechanic	91
	Business	26
	Color TV Repair	15
	Drafting	18
	Licensed Pract. Nurse	20
	Machine Tool Operator	11
	Medical Clerk	33
	Total	214
Pinal	Licensed Pract. Nurse	1
	Total	1
Yavapai	Licensed Pract. Nurse	20
	Total	20
Yuma	Clerical	22
	Farm Equip. Mechanic	30
	Total	52
	Total	3,332

Data supplied by State Department of Vocational Education Manpower Development & Training

Table 41 lists the MDTA programs in each county during the past year and the number of trainees. Table 42 is a summary of MDTA training for the entire state.

Table 42

Summary Of MDTA Training In Arizona
July 1, 1969 - June 30, 1970

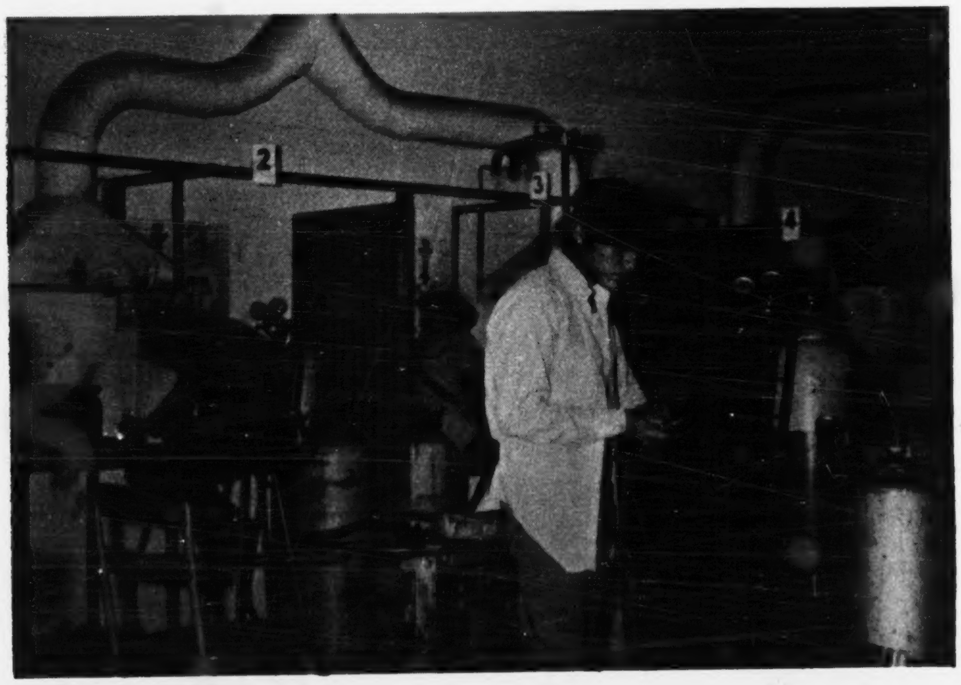
Program	Enrollment	Program	Enrollment
Agriculture	23	Farm Equip. Operator	57
Air Conditioning	2	Health Service	165
Aircraft Mechanic	61	Key Punch Operator	7
Auto Mechanic	329	Licensed Pract. Nurse	41
Barber	9	Logger	22
Basic Education	793	Machine Tool Operator	71
Bookkeeping	14	Manager Trainee	12
Business	26	Metal Fabricator	21
Clerical	384	Office Machines	9
Color TV Repair	15	Offset Printer	1
Cooperative	20	Orientation	381
Cosmetology	60	PBX-Receptionist	4
Culinary	72	Programmer	6
Diesel Mechanic	1	Sales Clerk	81
Diesel Truck Driver	10	Welding	21
Drafting	49		
Electronic Worker	564	Total	3,332

Data supplied by State Department of Vocational Education Manpower Development & Training

Electronic Assembly, MDTA Skill Center, Phoenix

Bureau of Indian Affairs Programs

As noted in the first chapter, some of the oldest skill training in Arizona was established for Indian boys and girls by the federal agency responsible for Indian programs. The BIA has continued to provide such training, both in the schools on and off Indian reservations which are operated by the Bureau and more recently in on-the-job placement programs. The training provided in Bureau operated schools is for both secondary and post-secondary students, including adults. Table 43 lists the BIA programs and enrollment in each county during the past year. Table 44 is a summary of BIA training for the entire State.



Welding Class, Phoenix Indian High School, Phoenix

Table 43

BIA Programs and Enrollments in Arizona by County
July 1, 1969 - June 30, 1970

County	Program	Enrollment
Apache	Auto Mechanics	50
	Business Machines	48
	Carpenter	52
	Clerical	296
	Clerk	22
	Electrician	9
	Electronics	354
	Home Economics	200
	Hotel Management	17
	Machine Operator	25
	On-Job-Training	151
	Plumber	14
	Total	1,238
Coconino	Business Machines	25
	Carpenter	10
	Clerical	54
	Electrician	3
	Painter	8
	Sheetmetal	5
	Welder	10
	Total	115
Gila	Chainman	1
	Farm Equip. Operator	2
	Welder	10
	Total	13

Table 43 (cont'd)

County	Program	Enrollment
Graham	Auto Mechanics	28
	Drafting	1
	Welder	9
	Total	38
Greenlee	Ironworker	8
	Welder	3
	Total	11
Maricopa	Air Cond. & Refrig.	4
	Arts & Crafts	147
	Auto Mechanics	91
	Barber	3
	Bookkeeping	130
	Bricklayer	5
	Business	13
	Business Machines	3
	Carpentry	90
	Clerical	274
	Computers	39
	Cosmetology	81
	Drafting	59
	Electronics	72
	Health Services	170
	Home Ec. Careers	63
	Industrial Sewing	65
	Instrument Repair	42
	Iron Workers	15
	Janitor	2
	Journalism	37
	Key Punch	3
	Line Assembler	7
	Lumber Industry	31
	Machinist	5
	Modeling	1
	Painter	70
	Plumbers	7
	Programmers	7
	Retail Clerk	6
	Sheetmetal	6
	Truck Driver	6
	Welder	11
	Total	1,579
Navajo	Auto Mechanics	46
	Business Machines	75
	Carpentry	54
	Cashier	9
	Clerical	225
	Dispatcher	1
	Health Services	3
	Home Economics	155
	Janitor	2
	Lumber Ind.	31
	Machine Operator	5
	Manager	2
	Meat Clerk	1
	Probation Officer	1
	Station Attendent	5
	Truck Driver	4
	Universal Winder	4
	Waitress	2
	Total	625
Pima	Barber	3
	Bookkeeping	10
	Business	5
	Clerical	45
	Drafting	3
	Health Services	1
	Iron Workers	7
	Office Machines	1
	Sign Erector	1
	Welder	3
	Total	79
Pinal	Canvas Worker	20
	Drafting	1
	Total	21
Yuma	Adv. Layout	1
	Auto Sales	1
	Carpet Layer	1
	Total	3
	Total	3,722

Data supplied by Bureau of Indian Affairs

Table 44

Summary of BIA Training Programs in Arizona
July 1, 1969 - June 30, 1970

Program	Enrollment	Program	Enrollment
Adv. Layout	1	Hotel Management	17
Air Cond. & Refrig.	4	Industrial Sewing	65
Arts & Crafts	147	Instrument Repair	42
Auto Mechanics	215	Iron Worker	30
Barber	6	Janitor	4
Bookkeeping	140	Journalism	37
Bricklayer	5	Key Punch	3
Business	18	Line Assembler	7
Business Machines	151	Lumber Industry	63
Canvas Worker	20	Machinist	35
Carpentry	206	Manager	2
Carpet Layer	1	Modeling	1
Cashier	9	Office Machines	1
Clerical	894	On-Job-Training	151
Clerk	29	Painter	78
Computers	39	Plumber	21
Cosmetology	81	Probation Officer	1
Culinary	59	Programmer	7
Dispatcher	1	Sheetmetal	11
Drafting	77	Sign Erector	1
Electrician	11	Station Attendent	1
Electronics	368	Truck Driver	10
Farm Equip. Operator	2	Universal Winder	4
Health Services	174	Waitress	2
Home Economics	418	Welding	46
		Total	3,722

Data supplied by Bureau of Indian Affairs

Special Programs for Disadvantaged

Beginning in 1964 with the federal government's "war on poverty," a variety of special education and training programs were established for disadvantaged youth and adults throughout the United States. They were largely innovative, crisis-oriented, and frequently organized as crash programs intended to reach individuals desparately in need of trainining, with only secondary consideration given to cost and coordination with existing vocational and manpower training available. Many of them failed to achieve the results hoped for and were reorganized or closed down.

When the Nixon Administration came to office, the parent agency of these rescue-type programs, the Office of Economic Opportunity, was moved into the Department of Labor for better management and closer coordination with employment needs. A system of state and local coordinating committees was established known as CAMPS -- Comprehensive Area Manpower Planning System -- which included the vocational education and manpower training agencies as well as the newer emergency agencies created for special groups and situations. CAMPS committees now attempt to coordinate the policies of member agencies in order to achieve orderly growth and development of manpower training in each community and throughout the state, training which is closely related to the employment market and serves the particular needs of all disadvantaged persons.

In Arizona during the past year there have been ten special programs of this kind in operation. These are in addition to programs for students with special needs under the Department of Vocational Education and three privately contracted programs which will be described later. Table 45 lists the ten programs and their location, the training provided by each, and enrollment during the past year. Enrollment figures represent job training only, not basic education unless accompanied by job training. Due to the flexibility of these programs and the relatively high rate of mobility into and out of them, reliable figures showing actual training completions are not available. The enrollments shown here are trainees who remained in training long enough to have achieved job entry skills, according to the administrators of the programs.

Table 46 lists the combined numbers trained in these programs during the past year by occupations in each county, except where training locations are not available from the responsible agency. Table 47 is a summary of manpower training in special programs for the disadvantaged for the entire state.

Table 45

Special Programs for Disadvantaged in Arizona
July 1, 1969 - June 30, 1970

Program	Location	Enrollment
Model Cities	Tucson	No program at this time.
Operation Mainstream	Phoenix	114
	Cochise County	3
	Gila County	2
	Graham County	2
	Greenlee County	3
	Pima County	30
	Santa Cruz County	2
	Yuma County	2
		Total 158
SUN-SER (Step Up Now, Service Employment Redevelopment)	Phoenix	160
AJC (Arizona Job College)	Casa Grande	Programs began in September 1970.
CEP (Concentrated Employment Program)	Phoenix	502
CAP (Community Action Programs)	Phoenix	No programs at this time.
JOBS (Job Opportunities in the Business Sector)	Statewide	4,200
MOP (Migrant Opportunity Program)	Phoenix	45
Vocational Rehabilitation	Statewide	3,243
WIN (Work Incentive Program)	Statewide	1,236
		Total 9,544

Data supplied by Office of Manpower Planning

Table 46

Special Programs For Disadvantaged By County In Arizona
July 1, 1969 - June 30, 1970

County	Program	Enrollment
Cochise	Beautification	2
	Clerical	1
	Total	3
Gila	Maintenance	2
	Total	2
Graham	Kitchen Aide	2
	Total	2
Greenlee	Maintenance	2
	Clerical	1
	Total	3
Maricopa	Agriculture	40
	Automotive	121
	Clerical	342
	Culinary	40
	Electronics	100
	Health Services	366
	Home Economics	347
	Industrial Sewing	209
	Mechanical	127
	Miscellaneous	82
	Printer	15
	Sales	40
	Upholstery	15
	Welder	15
	Total	1,859
Pima	Automotive	4
	Clerical	103
	Drivers	4
	Flight Line Attendant	1
	Health Services	87
	Janitor	2
	Landscaping	7
	Meat Cutting	1
	Packing & Crating	1
	Tutoring	1
	Total	211
Santa Cruz	Health Services	1
	Landscaping	18
	Total	19
Yuma	Beautification	2
	Total	2
Counties Unknown	Barbers	7,443
	Carpentry	
	Clerical	
	Cosmetology	
	Health	
	Management	
	Mechanical	
	Sales	
	Welders	
	Total	7,443
	State Total	9,544

Data supplied by Office of Manpower Planning

Table 47

Summary Of Special Programs For Disadvantated In Arizona
July 1, 1969 - June 30, 1970

Program	Enrollment	Program	Enrollment
Agriculture	40	Kitchen Aid	2
Automotive	125	Landscaping	25
Beautification	4	Maintenance	4
Clerical	447	Meat Cutter	1
Culinary	40	Mechanical	127
Drivers	4	Miscellaneous	7,525
Flight Line Attendant	1	Packing & Crating	1
Electronics	100	Printing	15
Health Services	454	Sales	40
Home Economics	347	Tutoring	1
Industrial Sewing	209	Upholstery	15
Janitor	2	Welder	15
		Total	9,544

Data supplied by Office of Manpower Planning

Privately Contracted Federal Programs

The resources of private enterprise are being used in many of the manpower training programs today, in most cases in supporting or participating roles but in several cases they have been given the entire responsibility under contracts with the Labor Department. Arizona has three privately contracted training programs, two in Phoenix and one in Chandler. One of the Phoenix programs and the one in Chandler are industry oriented, under contracts in each case with large national industrial corporations.

The second program in Phoenix is completely unique. It is a private, non-profit self-help organization which originated in Philadelphia and has since spread to most major cities throughout the United States. This is the Phoenix OIC -- Opportunities Industrialization Center -- established by negros primarily but not exclusively for the economic and social advancement of their own people. All disadvantaged persons are served without regard for color or race, and in Phoenix a number of Mexican-Americans have participated since the organization was first established in the fall of 1957.

Courses actually offered by the Phoenix OIC are all pre-vocational, with training provided on the job after completion of the basic program. All students take six basic courses, and those without high school diplomas take G.E.D. preparation also. The basic courses are computational skills, communications skills, personal development, consumer education, ethnic orientation, and "jobology" (the requirements of finding and keeping a job). Placement is 100% since trainees enter OIC only when there is a special job opening into which they can be placed. Private business and industry as well as civic groups contribute to the support of the Phoenix OIC, and contractual arrangements for training are made with both the Department of Labor and the State Department of Vocational Education.

The second privately contracted training program in Arizona was established in Chandler early in 1969 by a consortium of local businessmen known as Creative Localism, Inc. A contract was arranged through the Department of Labor with the General Learning Corporation to establish and operate the Chandler Career Center. General Learning is the educational affiliate of General Electric Company and Time, Inc. The Center approaches employees in the area for pledges of jobs for the hard core unemployed, who are then prepared for these specific jobs. Most of the Center's trainees are Indians from the Maricopa and Gila reservations, with a number of Mexican-American and a few Negros.

Like the OIC, most of the training in the Chandler Career Center is pre-vocational preparation followed by skill training on the job. In both programs, continuous contact is maintained with trainees on the job and various kinds of assistance are provided including additional pre-vocational work when needed. While receiving their pre-vocational training in the Center, trainees are paid regular salaries at the minimum wage level. In addition, they receive free bus transportation between their homes and the Center, and free medical, dental, legal, childcare, and family counseling services. It is a costly program in terms of numbers benefited, but General Learning's contract provides payment only for those trainees who are placed in jobs and full payment only for those who remain in their jobs a full year.

The third privately contracted program in Arizona is the Phoenix Residential Manpower Center established in the late spring of 1969. It is one of the first of thirty urban skill centers across the nation designed to replace fifty-eight Job Corps Centers closed in 1968. Their objective is to reach disadvantaged youth of both sexes between sixteen and twenty-one years of age and provide them with skill training and other support in their own neighborhoods. The Packard Bell Electronics Corporation has a contract with the Department of Labor to establish and operate the Phoenix Center. It is designed to handle approximately 350 enrollees in both residential and non-residential programs over a period of two years.

Training includes academic courses from remedial to G.E.D., auto mechanics, food services, metal trades, health occupations, business and clerical, and job preparation. Students receive additional preparation in self-awareness and avocational interest, counseling services, and residential support if needed. Here again the cost per student is quite high, justified only by the desperate need thought to exist for this kind of a program to reach persons who would otherwise cost the public even more in institutional services during most of their lives. The two-year contract is for $3,661,461 with an additional $202,500 approved for allowances to trainees during the contract periods. Purchase of property for $105,000 is an additional item under the contract. If the projected number of 350 trainees is reached, this would be $11,339.88 per trainee. During the first year only 100 trainees are reported to have been enrolled.

Table 48 lists the programs and enrollment during the past year in each of these Centers, and the total number trained. Specific figures showing the number trained in each occupation are not available.

Table 48

Privately Contracted Federal Program Enrollment in Arizona
By County July 1, 1969-June 30, 1970

County	Organization	Programs	Enrollment
Maricopa	Phoenix OIC	Computerized Skills Communication Skills Consumer Education Ethnic Orientation G.E.D. Preparation JOBOLOGY (act of finding & keeping job) Personal Development	106
	Phoenix Residential Manpower Center	Auto Mechanics Business & Clerical Electronic Assembly Food Services G.E.D. Preparation Job Preparation Metal Trades Para-Medical Occupations	100
Pinal	Chandler Career Center	On-Job-Training	516
		Total	722

Data supplied by Phoenix OIC, Phoenix Residential Manpower Center and Chandler Career Center.

Private Schools

Career training in many fields is a profitable business, and numerous schools exist for the dual purpose of preparing applicants for employment and earning a profit while doing so. As private institutions they can be as selective and flexible as they wish; their only objective in order to stay in business is to train their students to be able to get and hold satisfactory jobs. Following World War II considerable numbers of veterans used their educational benefits to attend private schools, and the Veteran's Administration today maintains a listing of approved institutions in each state.

Many non-veterans select private schools for the assurance they feel that the cost is a safe investment in a good paying job. Unlike most public programs, the private institutions provide only skill training; their students must have the necessary educational foundations before they enroll. Consequently, for a great number of high school graduates and even students without a high school education who want to prepare for certain occupations, they can do so in less time this way than to enroll in one of the public programs.

In Arizona the number of private training schools has been increasing in the past two decades as rapidly as students and employment opportunities in the state can support them. Table 49 lists all of the schools with trainees during the past year which could be identified from the Veteran's Administration list and the yellow pages of telephone directories. Enrollment figures in most cases are estimates only

Powerplant Class, Madison Aviation, Mesa made by the institutions themselves, and their reliability in some cases is doubtful. They are included here as the only data available which represent the significant private sector of manpower training in Arizona. Table 50 is a summary by occupation of private training for the entire state.

Table 49

Private Training Schools in Arizona Enrollment by County
July 1, 1969 - June 30, 1970

County	School	Location	Enrollment
Cochise	Cochise Academy of Beauty	Douglas	12
	Rose-Mar College of Beauty	Bisbee	24
Coconino	Barber College of Plaza Mall	Flagstaff	5
	Flagstaff Beauty College	Flagstaff	24
	Greenlaw Academy of Beauty	Flagstaff	60
	Page Aviation	Page	1
Gila	Rose-Mar College of Beauty	Globe	23
Maricopa	ABC Welding School	Phoenix	120
	Academy of Drafting	Tempe	90
	Advance Trade School	Phoenix	250
	Aircraft Instrument Co.	Phoenix	15
	Airline Ground School, Inc.	Phoenix	30
	American Diesel Driver Training	Phoenix	120
	AMI Advertising & Marketing Institute	Phoenix	15
	Arizona Automotive Institute	Phoenix	100
	Arizona Barber College	Phoenix	50
	Arizona Medical & Dental Assistants College	Phoenix	15
	Arizona School of Appraisers	Scottsdale	45
	Arizona School of Real Estate	Scottsdale	75
	ASA's Diesel Driver Training	Phoenix	20
	Blair College of Medical & Dental Ass'ts.	Phoenix	550
	Career College of Cosmetology (East)	Phoenix	37
	Career College of Cosmetology (West)	Phoenix	52
	Cell's School of Cosmetology	Phoenix	18
	Columbia School of Broadcasting	Phoenix	65
	Continental Security Guards	Phoenix	50
	De Vry Institute of Technology	Phoenix	350
	Durham Business College	Phoenix	500
	Earl's Academy of Beauty Culture	Phoenix	25
	Ed Henrick's Real Estate School	Phoenix	20
	Electronic Computer Programming	Phoenix	225
	Electronic Institute of Arizona	Phoenix	100
	Estelle's School of Fashion	Phoenix	60
	Ford Schools	Phoenix	1,000
	Good Samaritan Hospital	Phoenix	20
	Gregg Business College	Phoenix	50
	Hope Wig College	Phoenix	480
	Institute of Broadcast Arts	Phoenix	1
	International Academy of Beauty Culture	Phoenix	65
	Kachina School of Art	Phoenix	150
	Key Punch Academy	Phoenix	250
	Kinchoe Barber College	Phoenix	10
	Lamson Business College	Phoenix	400

Table 49 (cont'd)

County	School	Location	Enrollment
Maricopa (cont'd)	Langdon Court Reporting School	Phoenix	50
	Madison Aviation Inc.	Mesa	60
	Mario's Continental Academy of Beauty	Phoenix	35
	Mario's Continental Academy of Beauty	Scottsdale	40
	Medical Training Center	Phoenix	300
	Memorial Hospital, School of Medical Technology	Phoenix	9
	Mercury Aviation Corp.	Phoenix	150
	Missionary Aviation, Inc.	Phoenix	100
	Modern School of Refrigeration	Phoenix	150
	Mr. Anthony's of Phoenix Modeling School	Phoenix	50
	Patricia Stevens Career College	Phoenix	260
	Phoenix Academy of Beauty Culture	Phoenix	150
	Phoenix Aviation Corp.	Phoenix	130
	Phoenix Schools, Inc.	Phoenix	250
	Plaza Three Modeling School	Phoenix	350
	Rhodell Aviation	Phoenix	250
	Roberts Aircraft, Inc.	Goodyear	84
	Saguaro Aviation, Inc.	Phoenix	90
	Sales Training Institute	Phoenix	350
	Sawyer School of Aviation	Phoenix	60
	School of Market Checking	Phoenix	20
	Scottsdale Aviation	Scottsdale	60
	Southwestern Preparatory School of Medical Ass'ts.	Phoenix	125
	St. Luke's Hospital Medical Center	Phoenix	22
	Sterling Secretaries at Law	Phoenix	New
	Trans-matic, Inc.	Phoenix	40
Pima	ABC Trade School	Tucson	56
	Arizona Academy of Beauty	Tucson	60
	Chenault School of Beauty Culture	Tucson	60
	Chez Josef Academy of Beauty	Tucson	40
	Desert School of Sewing & Fashion	Tucson	500
	Emerson Flying Service	Tucson	40
	Flair Parisienne School of Modeling	Tucson	400
	Fosi's Glamour Technique & Modeling	Tucson	60
	Golden Beauty College	Tucson	80
	Hudgin Air Service	Tucson	35
	Kincheloe Barber College	Tucson	10
	Lamson Business College	Tucson	560
	S. H. Kress Practical Nursing School	Tucson	22
	Stroud Aviation	Tucson	250
	Tucson Barber College	Tucson	20
	Tucson Beauty College	Tucson	120
Pinal	Western School of Beauty Culture	Casa Grande	20
Yavapai	Prescott School of Beauty Culture	Prescott	20
Yuma	Yuma School of Beauty	Yuma	12
		Total	10,768

Data supplied by RCU Data System Division

Table 50

Summary of Private Training in Arizona
July 1, 1969 - June 30, 1970

Program	Enrollment	Program	Enrollment
Advertising & Marketing	15	Key Punch	250
Aircraft Mechanics	30	Market Checking	20
Art	195	Mechanics	210
Auto Mechanics	350	Modeling	1,470
Avionics	30	Pilot Training	1,325
Barbers	95	Programming	225
Bookkeeping	175	Property Appraiser	64
Business	175	Radio/TV	84
Clerical	475	Real Estate	1,095
Cosmetology	1,813	Refrigeration	160
Court Reporting	50	Sales	350
Drafting	90	Security Guard	50
Electronics	59	Truck Driver	140
Fashion Design	560	Welding	120
Health Services	1,064	Total	10,768

Data supplied by RCU Data Systems Division

Rose-Mar College of Beauty

CHAPTER IV

EMPLOYMENT OPPORTUNITIES AND CAREER CHOICE

> Congress has established *that persons of all ages in all communities . . . will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment and which is suited to their needs, interests, and ability to benefit from such training.*
>
> -- *Public Law 90-576*
> *Vocational Education Amendments of 1968*

Career education has a two-fold purpose, each dependent on the other and equally important. One is to prepare students and trainees for employment by giving them saleable skills. The other is to make available to business and industry -- to the nation's entire economy -- a reliable supply of qualified manpower to meet employment demands. Too few persons being prepared for particular occupations results in shortages of goods and services. Too many trained personnel available in an occupation causes unemployment, frustration, and low salaries. The goal of every career education program, therefore, is to maintain a balance between supply and demand while taking into consideration the needs and limitations of the individual.

It is not an easy thing to do at any time, and often impossible. Fluctuations in the economy invariably cause some occupations to be over-supplied during periods of decreased business activity and create shortages when the economy is strong. A constant effort is made by employers, by the State Employment Service, and by training institutions to keep both shortages and over-supply at a minimum. The Vocational Education Amendments of 1968 require that all programs in the schools be directly related to the employment market, and virtually all manpower training programs attempt to regulate their enrollments by known or anticipated jobs available over a relatively short period of time.

Obviously the ideal is never realized, not only because of fluctuations in the job market, but for other reasons as well. One is the great difficulty of making reliable projections of employment needs for students who must spend several years in career preparation. Another is brought about by the differences in cost between different kinds of occupational training. Many schools and training institutions cannot afford to offer preparation for occupations requiring expensive equipment and instruction. But possibly the most prevalent reason for shortages and over-supply in the job market is lack of adequate information -- and often interest or motivation -- by students, teachers, parents, and counselors about the selection of career opportunities available. Under these circumstances matching graduates with jobs and careers is a never ending challenge, more of a gamble than a science, and will continue to be difficult even when computer job banks and computer-assisted career selection are developed for every community and every student.

Manpower Needs

Arizona lacks any reliable way to project occupational requirements even one year beyond existing needs, and even current demand may fluctuate unpredictably from one month to the next in some occupations. Nevertheless, projections are constantly being made because of their need by management for economic planning as well as for estimating future requirements in manpower training and career education. The usual method is to survey employers for current employment figures and their anticipated employment needs one year ahead. Current data may be obtained through a complete employment census or by using statistically valid sampling techniques; but most employers advise against placing much credence in their estimates of employment a year in advance. There are too many unpredictable factors which may intervene, including success or failure in getting government contracts, new product development, changes in the market, and management decisions in home offices remote from the local plant. The most reliable data for educational planning would be projections based on a variety of economic indicators programmed in a large computer to reflect each contributing fluctuation in the State's economy, and attempts have been made -- particularly in the College of Business Administration at Arizona State University -- to develop an economic model of this kind. It is fairly expensive, however, and has never gone beyond the exploratory stage.

Lacking anything better, the State Employment Service develops most of the data that is available using combinations of straight line projections from certain base years and one-year anticipated employment needs. The principal base year, and by far the most reliable, is the first year of each new decade when the national census is taken. The last complete set of manpower projections in Arizona were made in 1965 and published in a widely circulated document entitled *Manpower Directions 1975*. Those figures predicted 251,300 new job opportunities in the State during the decade 1965-1975 broken down into the following groups:

Professional, technical, managerial	78,000
Clerical	45,000
Sales	16,000
Service occupations	41,800
Skilled	33,000
Semi-skilled	32,000
Unskilled	5,000
TOTAL	251,300

Total employment figures projected in the same report showed the greatest numerical growth in manufacturing followed by wholesale-retail services, and government employment in that order. The total labor force was projected to a level of 777,000 by 1975 with 19,000 of these in the fourteen to twenty-four year age group. It was pointed out that 21% of the state's population will be in this age group by that time.

Certain groups of occupations have been surveyed since 1965, notably the health services, skilled crafts, and technical fields. A saturation survey of engineering and technology which included skilled machine occupations was made by the Research Coordinating Unit in the summer of 1967. Tables 51 and 52 show the actual employment and projected employment demands in those particular fields at the time the surveys were made.

Table 51

Health Services Employment Demands, Arizona, 1965

Position	Current Employment	Estimated Annual Increase	Annual Replacement	Annual Employment Demand
R.N. Supervisor		(Data not available)		
R.N.	5,556	659	389	1,048
L.P.N.	1,578	391	110	501
Nurse Aide	3,309	387	232	619
Medical Assistant	257	15	18	33
Surgical Technician	116	32	8	40
Medical Record Tech.	116	16	8	24
Medical Record Sec.	138	29	10	39
Office Nurse (Not Regis.)	311	20	22	42
Medical Secretary	829	61	58	119
Laboratory Assistant	261	34	18	52
X-Ray Technologist	410	50	29	79
Inhalation Therapist	36	21	3	24
Physical Ther. Assist.	14	13	1	14
Occup. Therapy Assist.	4	5	0	5
Dental Assist.	699	20	49	69
Dental Technician	61	3	4	7
Total	13,695	1,756	959	2,715

Data supplied from Projected Training Needs for Health Service Occupations

Table 52

Employment and Projected Demand in Technical and Industrial Occupations Arizona, 1975

Occupation	Current Employment	Minimum Annual Demand 1975	Probable Annual Demand 1975	Possible Annual Demand 1975
Aeronautical Technician	372	111	222	333
Chemical Technician	151	63	126	189
Civil Technician	1,255	24	48	72
Data Process Technician	361	119	288	357
Drafting Technician	513	79	158	237
Electrical Technician	339	48	96	144
Electronic Technician	1,271	111	222	333
Geological Technician	25	31	62	93
Industrial Technician	243	80	160	240
Mechanical Technician	514	95	190	285
Metallurgic Technician	41	39	78	117
Total Technicians	5,085	800	1,650	2,400
Experimental Machinist	439	136	272	408
Instrument Maker	70	145	290	435
Instrument Man	140	127	254	381
Layout Man	199	127	254	381
Machine Set Up	758	60	120	180
Machine Repair	320	136	272	408
Tool and Die Maker	234	119	238	357
Total Skilled Craftsmen	2,160	850	1,700	2,550

Data supplied from Engineering and Technology in Arizona

Table 53

Employment Opportunities Related To Vocational Education Programs
Labor Demand And Supply Summary

		Pima County				Maricopa County				State of Arizona			
OE Code	Instructional Program	Current Employ-ment	Increase by 1975	Replace-ments 1971-1975	Total Needed	Current Employ-ment	Increase by 1975	Replace-ments 1971-1975	Total Needed	Current Employ-ment	Increase by 1975	Replace-ments 1971-1975	Total Needed
	DISTRIBUTIVE												
04.0101	Advertising	Not Available				400	100	50	150	Not Available			
04.0102	Apparel & Accessories	7,500	2,900	1,500	4,400	26,000	14,000	2,000	16,500	40,000	16,100	6,000	22,100
04.0103	Automotive & Petroleum	550	125	75	200	1,000	500	300	800	3,000	850	500	1,350
04.0104	Finance & Credit	375	75	50	125	1,300	800	200	1,000	1,900	800	400	1,200
04.0105	Food Distribution	1,100	300	200	500	1,700	1,200	400	1,600	3,250	1,600	800	2,400
04.0106	Food Services	600	200	50	250	2,300	1,100	500	1,600	3,700	1,100	700	1,800
04.0108	General Merchandise	1,300	600	200	800	5,500	2,800	600	3,400	7,800	3,400	1,000	3,500
04.0110	Home Furnishings	175	50	25	75	650	300	100	400	900	450	200	650
04.0111	Hotel & Lodging	1,100	400	200	600	1,200	450	200	650	3,300	650	500	1,150
04.0112	Insurance	600	50	75	125	1,050	850	150	1,000	2,100	900	250	1,150
04.0113	Management	400	100	50	150	1,800	400	200	600	2,500	600	350	950
04.0115	Mid-Management*	See Management				See Management				See Management			
04.0116	Real Estate	350	50	50	100	900	800	300	1,100	1,500	950	400	1,350
04.0117	Retailing (Gen/Misc.)	650	100	50	150	2,100	1,300	300	1,600	3,300	900	450	1,350
04.0118	Transportation	1,200	100	75	175	1,000	250	100	350	3,700	400	250	650
04.0119	Wholesaling	1,100	400	150	550	4,200	2,150	500	500	5,800	2,400	800	3,200
	HEALTH												
07.0101	Dental Assistant	425	125	150	275	800	100	100	200	1,350	100	300	400
07.0102	Dental Hygienist	60	15	20	35	150	45	20	65	225	50	25	75
07.0103	Dental Lab Technician	50	20	20	40	80	35	20	55	150	25	25	50
07.0202	Histology Technician**	See Med. Lab. Technician				See Med. Lab. Technician				See Med. Lab. Technician			
07.0203	Medical Lab Technician	300	75	50	125	850	350	200	550	1,350	400	300	700
07.0206	Nurse's Aide	900	200	250	450	2,100	1,000	400	1,400	3,700	1,600	600	2,200
07.0208	Hosp. Food Services Super.	40	10	10	20	80	30	10	40	140	-	10	10
07.0209	Inhalation Therapy Tech.	35	15	5	20	60	30	-	30	110	50	10	60
07.0211	Medical X-Ray Tech. (Operating Room Tech.)	200	50	100	150	550	200	50	250	850	250	75	325
07.0212	Optician	30	5	-	5	100	20	-	20	135	25	10	35
07.0213	Surgical Technician	75	30	10	40	160	25	25	50	275	50	25	75
07.0214	Occup. Therapy Assistant	10	5	-	5	15	5	-	5	30	10	-	10
07.0215	Physical Therapy Assistant	15	10	5	15	25	20	10	30	50	10	5	15
07.0302	Licensed Practical Nurse	350	50	50	100	850	550	200	750	1,500	550	350	900
	HOME ECONOMICS												
09.0202	Clothing Mgt., Prod., Serv.	400	100	50	150	4,500	2,100	600	2,700	5,400	2,000	900	2,900
09.0203	Food Mgt., Prod.,& Serv.***	See Food Services				250	100	25	125	250	50	25	75
09.0205	Institutional & Home Management & Support Serv.	900	350	200	550	2,700	1,100	500	1,600	4,200	700	900	1,600

* Impossible to separate from Management
** Impossible to separate from Medical Lab Technician

***Impossible to separate from Food Services

Table 53 (Continued)

OE Code	Instructional Program	Pima County Current Employ-ment	Pima County Increase by 1975	Pima County Replace-ments 1971-1975	Pima County Total Needed	Maricopa County Current Employ-ment	Maricopa County Increase by 1975	Maricopa County Replace-ments 1971-1975	Maricopa County Total Needed	State of Arizona Current Employ-ment	State of Arizona Increase by 1975	State of Arizona Replace-ments 1971-75	State of Arizona Total Needed
	BUSINESS & OFFICE												
14.0100	Accounting & Computing	1,550	600	100	700	5,000	2,050	400	2,450	8,300	3,200	700	3,900
14.0200	Business Data Process.	450	300	200	500	1,500	700	200	900	2,100	1,200	500	1,700
14.0300	Filing, Gen. Clerical	850	300	300	600	2,200	1,400	400	1,800	3,700	2,250	1,000	3,250
14.0400	Interoffice Communication	500	200	100	300	1,600	650	200	850	2,700	1,000	400	1,400
14.0500	Materials Support	225	75	25	125	900	400	100	500	1,400	500	250	750
14.0600	Personnel, Training	175	75	25	125	900	250	100	350	1,250	300	200	500
14.0700	Steno., Sec., & Related	450	150	100	250	13,00	6,400	1,000	7,400	22,000	10,600	2,000	12,600
14.1000	Miscellaneous Office	375	75	25	125	1,100	300	200	500	2,000	400	400	800
14.0900	Typing & Related*		See Stenographic				See Stenographic				See Stenographic		
	TECHNOLOGY												
16.0104	Automotive Technology		Not Available				Not Available				Not Available		
16.0106	Civil Technology	200	25	-	25	450	200	50	250	850	225	75	300
16.0107	Electrical Technology	250	100	25	125	900	600	100	700	1,450	700	200	900
16.0108	Electronics Technology**		See Electrical Technology				See Electrical Technology				See Elec. Technology		
16.0111	Industrial Technology		Not Available				Not Available				Not Available		
16.0113	Mechanical Technology		Not Available				Not Available				Not Available		
16.0117	Data Process. Technology	150	75	25	100	300	300	50	350	550	400	100	500
16.0198	Welding Technology		Not Available				Not Available				Not Available		
16.9901	Aviation(A&P) Tech.		Not Available				Not Available				Not Available		
16.9902	Professional Pilot Tech.	75	10	-	10	160	40	-	40	250	40	10	50
16.9904	Avionics Technology		Not Available				Not Available				Not Available		
	TRADE & INDUSTRY												
17.0101	Cooling	175	50	25	125	375	75	25	100	550	300	50	350
17.0102	Heating***		See Cooling				See Cooling				See Cooling		
17.0103	Ventilation***		See Cooling				See Cooling				See Cooling		
17.0200	Appliance Repair	150	50	-	50	475	75	25	100	750	100	50	150
17.0301	Body & Fender	175	50	25	75	300	100	50	150	675	100	75	175
17.0302	Mechanics	850	100	125	225	1,550	900	200	1,100	2,800	800	500	1,300
17.0401	Aircraft Maintenance	450	50	25	125	775	200	50	250	1,350	250	100	350
17.0600	Bus. Machine Maint.	100	125	-	125	250	200	25	225	400	225	50	275
17.0900	Commercial Photo.	40	25	-	25	250	100	25	125	300	100	50	150
17.1001	Carpentry	1,450	50	25	75	2,250	100	100	200	4,400	100	150	250
17.1002	Electricity	1,000	150	75	225	1,200	-	50	50	2,550	200	150	350
17.1003	Heavy Equip.(Const.)	650	100	50	150	675	-	50	50	2,000	200	150	350
17.1004	Masonry	500	75	25	100	575	-	25	25	1,250	50	75	125
17.1005	Painting & Decorating	1,100	150	50	200	1,250	- 50	50	-	2,900	100	125	225
17.1006	Plastering	150	-	-	-	200	-	-	-	400	-	-	-
17.1007	Plumbing & Pipefitting	750	200	50	250	1,000	75	50	125	2,400	200	150	350
17.1100	Custodial Services	1,000	300	100	400	2,000	800	400	1,200	3,400	900	650	1,550
17.1200	Diesel Mechanic		See Mechanic				See Mechanic				See Mechanic		
17.1300	Drafting Occupations	125	50	25	75	1,300	700	200	900	1,600	700	300	1,000

* Impossible to separate from Stenographic & Secretarial

** Impossible to separate from Electrical Technicians

*** Im ossible to separate from Cooling

Table 53 (Continued)

OE Code	Instructional Program	Pima County				Maricopa County				State of Arizona			
		Current Employ-ment	Increase by 1975	Replace-ments 1971-1975	Total Needed	Current Employ-ment	Increase by 1975	Replace-ments 1971-1975	Total Needed	Current Employ-ment	Increase by 1975	Replace-ments 1971-1975	Total Needed
	TRADE & IND. (Con't)												
17.1401	Industrial Electricians*		See Electricity				See Electricity				See Electricity		
17.1402	Lineman*		See Electricity				See Electricity				See Electricity		
17.1403	Motor Repairman	200	-	-	-	850	100	50	150	1,300	100	75	175
17.1503	Radio/Television	125	25	-	25	400	50	25	75	600	75	50	125
17.1601	Dry Cleaning	400	100	75	175	1,100	200	150	350	1,750	400	250	650
17.1602	Laundering**		See Dry Cleaning				See Dry Cleaning				See Dry Cleaning		
17.1900	Graphic Arts Occup.	375	100	25	125	900	350	100	450	1,400	450	150	600
17.2100	Instruments Maintenance & Repair	100	-	-	-	100	25	-	25	250	-	25	25
17.2301	Foundry		Not Available			200	-	-	-	200	-	-	-
17.2302	Machine Shop***		See Machine Tool Oper.			2,100	750	300	1,050		See Machine Tool Oper.		
17.2303	Machine Tool Operation	200	75	25	100		See Machine Shop			2,900	900	400	1,300
17.2304	Metal Trades (Combined)	225	25	25	50	2,500	1,100	200	1,300	3,200	1,200	350	1,550
17.2305	Sheet Metal	600	50	25	75	750	300	75	375	2,000	400	200	600
17.2306	Welding	250	50	25	75	2,000	900	200	1,100	2,850	700	300	1,000
17.2602	Cosmetology	1,100	300	200	500	4,000	400	600	1,000	8,400	700	900	1,600
17.2801	Fireman Training	275	50	50	100	1,200	100	100	200	1,700	100	175	275
17.2802	Police Science	500	50	75	125	1,500	200	100	300	2,400	400	275	675
17.2901	Barber	750	50	75	125	1,400	300	150	450	2,300	200	300	500
17.2902	Cook/Chef	900	350	200	550	3,300	1,900	700	2,600	5,200	2,300	1,200	3,500
17.2903	Meat Cutter	200	75	25	100	900	425	75	500	1,250	100	125	225
17.2904	Waiter/Waitress	1,300	450	300	750	5,300	2,700	800	3,500	8,500	3,100	1,500	4,600
17.3000	Refrigeration	200	75	25	125	350	50	50	100	650	150	100	250
17.3302	Tailoring	50	10	10	20	100	-	5	5	175	175	5	180
17.3400	Shoe Mfg./Repair	50	-	5	5	100	-	5	5	175	175	5	180
17.3500	Upholstering		Not Available				Not Available				Not Available		
17.3600	Millwork & Cabinet Maker	175	25	25	50	350	100	50	150	700	125	100	225
	AGRICULTURE												
01.0100	Agricultural Production	700	-	15	15	5,850	100	100	200	13,900	150	250	400
01.0200	Agricultural Supplies	100	25	15	40	850	100	150	250	2,000	250	325	575
01.0300	Agricultural Mechanics	600	- 50	30	- 20	4,850	-350	250	-100	11,500	-800	600	-200
01.0400	Agricultural Products	25	-	-	-	250	-	10	10	580	-	30	30
01.500	Ormental Horticulture	15	-	5	5	150	50	50	100	320	100	120	220
01.0600	Agricultural Resources	150	-	7	7	1,100	-	50	50	2,600	-	300	300
01.0700	Forestry	10	-	-	-	15	-	15	15	130	10	10	20

* Impossible to separate from Electricity
** Impossible to separate from Dry Cleaning
*** Impossible to separate from Machine Tool Operation

Data supplied by Arizona State Employment Service

Under the Vocational Education Amendments of 1968, the State Employment Service provides projectional data for occupations which relate, as closely as possible, to the list of training programs offered in vocational education. These are based originally on the 1960 census, and projections made ten years later are only approximations at best. They are shown in Table 53 as five-year employment needs anticipated in Arizona by OE code. Presumably next year they will be much better.

Career Guidance and Counseling

Career guidance in the schools is a comparatively recent development dating back to about the time public support for vocational education was becoming a national trend. Its basic concept and formal structure can be traced to the first Vocational Bureau founded in Boston in 1908 by writer-lecturer Frank Parsons. Three standards were proclaimed to assure effective counseling: "A clear understanding of self; complete knowledge of job requirements; and true reasoning based on facts." Efforts were made in the decades following to establish guidance programs in school systems throughout the country, but most programs were short lived due to cost.

In 1947 Arizona began its first guidance programs in Tucson, Prescott, and Glendale High Schools. In this same year a State Supervisor of Guidance Services was appointed. Initially teachers became part-time counselors by administrative designation, but by 1959 over 80% of the high schools in the state had organized guidance programs. Rapid growth continued in the next decade, and by the end of 1969 there were 274 full-time counselors in secondary schools in Arizona; thirty-seven counselors in the nine community colleges; and 140 counselors at the elementary school level. Ninety-seven high schools now have organized guidance programs and 117 offer some kind of guidance services. Tables 54 and 55 list those schools with full guidance programs and the number of personnel in each case.

Many educators and a considerable segment of the general public feel that career guidance as compared with personal and academic counseling is still greatly in need of strengthening. Guidance services include development of individual inventories, testing, academic counseling, college and career information, some grade or job placement, and a certain amount of follow-up to determine educational career effectiveness. In practice many emotionally disturbed and social problem cases in the schools are referred to counseling personnel, with the result that many counselors have little time for anything else. This concentration on personal problems to the neglect of guidance services is encouraged to some extent by the kind of training school counselors receive. All three Arizona universities offer counselor preparation programs with requirements varying from thirty to sixty hours. The programs in each case are located in departments of educational psychology, and there is a tendency of stress psychological problem solving over career guidance or even academic counseling.

State certification requirements include a Master's degree from an approved institution in guidance and counseling and three years of teaching experience or two years teaching and one of acceptable clinical work. Four courses are required for certification: Analysis of the Individual, Principles of Guidance, Counseling Techniques, and Careers. The Guidance Counselor Certificate is valid for six years.

Table 54

Guidance and Counseling in Arizona High Schools

County & School	Enrollment	No. of Counselors	Student/Counselor Ratio (Approx.)
APACHE			
Chinle Teaching	546	0	0
Ganado	344	1	344
McNary	90	1	90
Round Valley	281	1	281
St. Johns	169	1	169
Valley	178	1	178
Window Rock	536	1	536
COCHISE			
Benson	319	2	159
Bisbee	928	3	309
Bowie	81	1	81
Buena	803	4	201
Douglas	1,326	4	331
St. David	109	0	0
San Simon	44	1	44
Pearce Valley	NA	1	NA
Willcox	456	1	456
COCONINO			
Coconino	777	2	388
Flagstaff	1,296	3	432
Fredonia	72	1	72
Grand Canyon	78	1	78
Page Accomod.	180	1	180
Tuba City	375	1	375
Williams	258	2	258
GILA			
Globe	830	2	415
Hayden	237	1	237
Miami	737	2	368
Payson	169	0	0
GRAHAM			
Ft. Thomas	118	0	0
Pima	146	0	0
Safford	804	1	804
Thatcher	220	1	220
GREENLEE			
Clifton	239	1	239
Duncan	241	1	241
Morenci	566	1	566
MARICOPA			
Agua Fria Union	909	2	450
Buckeye Union	673	1	673
Chandler	1,491	3	497
Dysart	655	2	325
Gila Bend	175	1	175
Gilbert	380	1	380
Cortez	2,226	8	278
Glendale	2,049	7	292
Moon Valley	2,059	5	412
MARICOPA-Cont'd			
Sunnyslope	1,744	6	290
Washington	2,035	6	339
Maricopa	129	1	129
Mesa	2,030	5	406
Alhambra	3,495	9	386
Camelback	2,859	8	357
Carl Hayden	2,546	6	424
Central	2,618	7	374
East	2,424	6	404
Maryvale	3,994	10	399
North	2,204	6	367
Phoenix Union	2,913	19	153
South Mountain	2,774	13	213
West	2,535	8	317
Coronado	2,797	7	399
Saguaro	2,611	7	373
Scottsdale	1,705	5	341
Arcadia	1,831	5	366
McClintock	2,063	5	412
Tempe	1,961	3	653
Tolleson Union	744	2	372
Westwood	2,561	5	512
Paradise Valley	1,563	4	390
Peoria	497	2	248
Wickenburg	290	1	290
MOHAVE			
Kingman	943	3	314
Lake Havasu	334	1	334
Mohave	249	1	249
NAVAJO			
Alchesay	242	1	242
Holbrook	650	2	325
Pinetop(Blueridge)	228	1	228
Monument Valley	290	1	290
Snowflake Union	748	3	249
Winslow	801	1	801
PIMA			
Ajo	609	2	304
Amphitheater	1,453	4	363
Canyon del Oro	980	3	327
Flowing Wells	1,041	5	208
Indian Oasis	157	1	157
Marana	410	1	410
Sahaurita	285	1	285
Sunnyside	1,777	4	444
Catalina	2,668	8	333
Palo Verde	2,593	7	370
Pueblo	2,150	8	268
Rincon	2,746	6	457

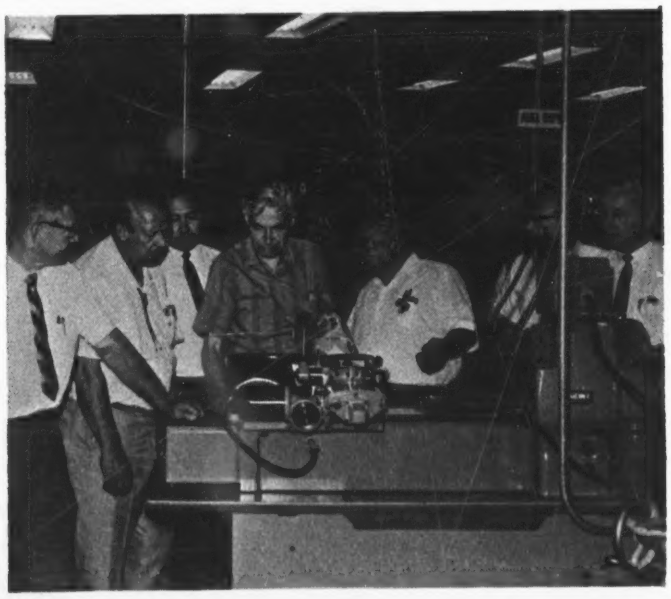
Table 54 (Cont'd)

Guidance and Counseling in Arizona High Schools

County & School	Enroll-ment	No. of Coun-selors	Student/ Coun-selor Ratio (Approx)
PIMA-Cont'd			
Sahauro	2,387	5	477
Tucson	3,146	7	449
Cholla	890	2	445
PINAL			
Apache Junction	215	1	215
Casa Grande	1,281	3	427
Coolidge	711	3	230
Florence	338	2	169
Mammoth	713	2	356
Ray	476	1	476
Santa Cruz Valley	501	1	501
Superior	498	1	498
SANTA CRUZ			
Nogales	996	3	332
Patagonia	108	1	108
YAVAPAI			
Ash Fork	53	1	53
Bagdad	165	0	0
Camp Verde	182	1	182
Chino Valley	24	0	0
Mayer	69	0	0
Mingus	440	1	440
Prescott	1,230	6	205
Seligman	45	0	0
YUMA			
Antelope Union	236	1	236
Kofa	1,904	4	476
Parker	463	1	463
Yuma	1,578	3	526
Total	117,096	344	340

Data supplied by State Department of Vocational Education

Arnold's Pickle Factory
Phoenix



Phoenix Union High School
Vocational Center

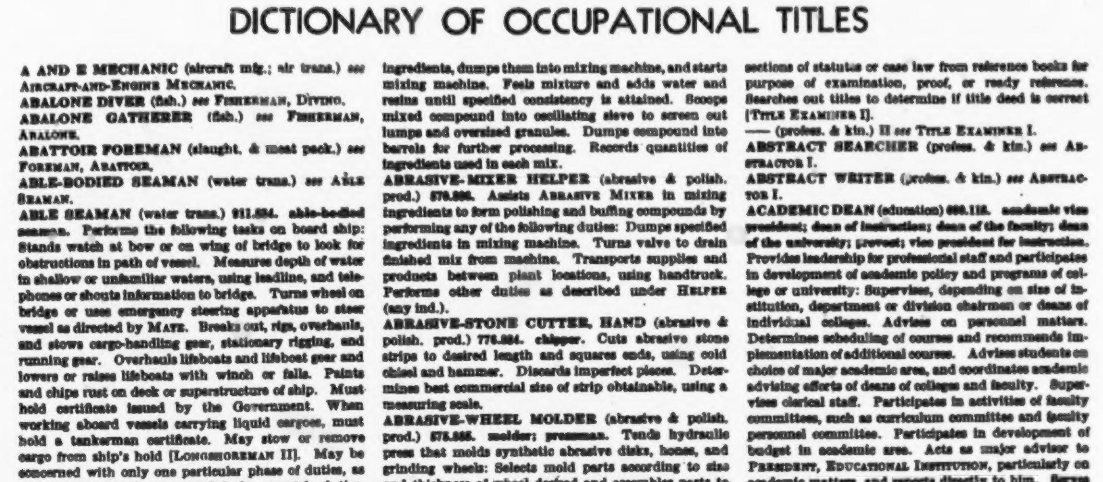
Counselors attending a university "walking" workshop visit all types of potential employers and training centers.

Table 55

Guidance and Counseling in Arizona Community Colleges

College	Enrollment	No. of Counselors	Student/Counselor Ratio
Arizona Western College	2,337	5	467
Cochise College	1,605	5	321
Central Arizona College	2,070	5	400
Eastern Arizona College	1,593	3	531
Glendale Community College	6,175	6	1,029
Maricopa Technical College	3,432	4	858
Mesa Community College	5,942	6	990
Phoenix City College	10,497	7	1,500
Pima College	Begins operation in September 1970		
Scottsdale College	Begins operation in September 1970		
Yavapai College	801	2	400
Total	34,452	43	801

Data supplied by State Department of Vocational Education



DICTIONARY OF OCCUPATIONAL TITLES

A AND E MECHANIC (aircraft mfg.; air trans.) *see* AIRCRAFT-AND-ENGINE MECHANIC.

ABALONE DIVER (fish.) *see* FISHERMAN, DIVING.

ABALONE GATHERER (fish.) *see* FISHERMAN, ABALONE.

ABATTOIR FOREMAN (slaught. & meat pack.) *see* FOREMAN, ABATTOIR.

ABLE-BODIED SEAMAN (water trans.) *see* ABLE SEAMAN.

ABLE SEAMAN (water trans.) 911.884. able-bodied seaman. Performs the following tasks on board ship: Stands watch at bow or on wing of bridge to look for obstructions in path of vessel. Measures depth of water in shallow or unfamiliar waters, using leadline, and telephones or shouts information to bridge. Turns wheel on bridge or uses emergency steering apparatus to steer vessel as directed by MATE. Breaks out, rigs, overhauls, and stows cargo-handling gear, stationary rigging, and running gear. Overhauls lifeboats and lifeboat gear and lowers or raises lifeboats with winch or falls. Paints and chips rust on deck or superstructure of ship. Must hold certificate issued by the Government. When working aboard vessels carrying liquid cargoes, must hold a tankerman certificate. May stow or remove cargo from ship's hold [LONGSHOREMAN II]. May be concerned with only one particular phase of duties, as maintenance of ship's gear and decks or watch duties, and be known as DECK-MAINTENANCE MAN; WATCHSTANDER.

ABOYEUR (hotel & rest.) *see* WHEELMAN.

ABRASIVE-COATING-MACHINE OPERATOR (abrasive & polish. prod.) 574.782. Sets up and operates machine to coat cloth, fiber, or paper with granules of abrasive material: Positions machine guides and stops on machine bed according to size of base material, using rule or template. Turns screws to adjust valve openings to regulate thickness of abrasive coating sprinkled on base material. Dumps specified abrasive, such as flint, garnet, emery, or corundum into container on machine. Positions flat piece of base material on machine bed and against guides and stops. Starts machine and manually feeds base material through machine. Examines base material for uniformity and thickness of abrasive coating. May operate machine to coat rolls of base material with abrasive granules.

ABRASIVE GRADER (optical goods) 570.782. Operates pebble mill to grind emery, rouge, and other abrasives and separates them according to fineness by water suspension method: Examines abrasive under microscope to determine grinding time required, and grinds in pebble mill. Turns valve to allow ground particles and water to flow into agitator tank. Presses button to start agitator which stirs particles into suspension. Stops machine and determines by microscopic examina-

ingredients, dumps them into mixing machine, and starts mixing machine. Feels mixture and adds water and resins until specified consistency is attained. Scoops mixed compound into oscillating sieve to screen out lumps and oversized granules. Dumps compound into barrels for further processing. Records quantities of ingredients used in each mix.

ABRASIVE-MIXER HELPER (abrasive & polish. prod.) 570.886. Assists ABRASIVE MIXER in mixing ingredients to form polishing and buffing compounds by performing any of the following duties: Dumps specified ingredients in mixing machine. Turns valve to drain finished mix from machine. Transports supplies and products between plant locations, using handtruck. Performs other duties as described under HELPER (any ind.).

ABRASIVE-STONE CUTTER, HAND (abrasive & polish. prod.) 775.884. chipper. Cuts abrasive stone strips to desired length and squares ends, using cold chisel and hammer. Discards imperfect pieces. Determines best commercial size of strip obtainable, using a measuring scale.

ABRASIVE-WHEEL MOLDER (abrasive & polish. prod.) 575.885. molder; pressman. Tends hydraulic press that molds synthetic abrasive disks, hones, and grinding wheels: Selects mold parts according to size and thickness of wheel desired and assembles parts to form mold. Weighs out specified amounts of abrasive compound and adhesive, pours compound into mold on rotating turntable, and inserts bushings and hub nuts in center of mold to form wheel. Places top plate on mold, positions mold in press, and turns valves and levers to close press and start pressing cycle. Removes pressed wheels from mold and places them on bats (plate) for

The Dictionary of Occupational Titles Lists 45,000 Current Jobs

Although Arizona, like most other states, has very little student guidance designed expressly for career preparation in the schools, some progress is being made in this direction. Since 1947 the State Department of Vocational Education has had a Career Guidance Supervisor, and a systematic effort is underway to strengthen the career guidance functions of counselors in the schools. Beginning in 1963 "walking" workshops for secondary and junior college counselors have been held each summer at one of the universities. These workshops take school counselors into business and industry to provide a more comprehensive knowledge of occupational duties, requirements and job availability. Counselors spend additional time with personnel directors of the major commercial organizations discussing immediate and future job openings and their requirements. At the close of the workshops information obtained by the counselors is compiled, printed, and copies supplied to all Arizona counselors. Two such workshops were conducted during the summer of 1970, one at Arizona State University and one at the University of Arizona. Participants included counselors at elementary, secondary and junior college levels plus administrators.

Gas Turbine Engine Inspection at AiResearch in Phoenix
Counselors in Summer Workshops observe employment in industry like this.

Close working arrangements have also been developed between placement counselors at the Arizona Employment Service and school counselors. Current and projected job opportunities and needs are provided on a monthly basis to all school counseling personnel, and one Employment Service counselor is assigned to each regional office for the purpose of maintaining direct contact with school counselors in his area.

Career information libraries have been established in Arizona secondary schools and community colleges where both students and counselors can obtain occupational information. Career Day programs are held each year in many of the high schools, with one or two days set aside for student investigation of various occupations. Audiovisual occupation information is provided on a regular basis to most secondary schools and to elementary schools upon request. These films, usually covering an occupational cluster, are viewed by all students in the school during assembly periods. Brochures in cartoon or other interesting form are distributed to students in an effort to acquaint them with a broad spectrum of career opportunities.

The need to expand such efforts and further strengthen this function of the educational system is shown by a national survey conducted in 1968 by the Center for Vocational Technical Education at Ohio State University. While the major influences on students' selection of courses in high school were found to be counselors, parents, teachers, and friends in that order, the reliance on counseling personnel for career guidance was a poor third following parents and friends. Reliance on counseling of any kind was strongest in schools where intelligence, aptitude and attitude tests were administered and the results made available to both students and parents. The need for counseling was felt by students to be greatest in providing more complete occupational information, assessments of the students' own personalities and abilities in relation to various careers, and more information on job opportunities within career fields.

Typical Counseling Session at Camelback High School

Cooperative Vocational Education

One of the most important single additions to high school and post-secondary education in recent years has been to provide students with a knowledge of the world of work through actual employment while in school. This program is called cooperative vocational education. It is a work-study program that combines actual occupational experience in a career interest area with education in a related class enabling students to acquire knowledge, skills and appropriate attitudes. A 1969 University of Minnesota guide for "Cooperative Vocational Education" lists a number of advantages of cooperative vocational education summarized as follows:

1. It probably provides the most relevant curriculum and instruction for students with vocational goals because it is designed to respond to students' needs and occupational requirements.

2. It provides for application of most vocational learnings because there is almost immediate opportunity for tryout in real-life situations.

3. It provides balanced vocational preparation including manipulative and technical skills. It is sensitive to occupational adjustment and career development needs because of the continuous feed-back from training sponsors and others.

4. Cooperative vocational education is well-equipped to prepare students with side variances in abilities for a broad range of occupational fields. Its only limitation is the number of potential training stations available in an occupational field.

5. Training more students that can be employed does not occur in cooperative vocational education because participation is limited to students who can be placed in cooperating training stations. There are other manpower control features such as the occupational survey and advisory committee.

6. Close community relations is a necessity in cooperative vocational education because of its dependence on the community for job placement and on-the-job instruction.

Current studies show that across the country co-op programs, as they are called, follow almost identical patterns due to their encouragement and support by the federal government. Almost invariably they have the following elements.

1. Teacher-coordinators.

2. Related instruction focusing on technical competencies, career development, and occupational adjustment taught by the teacher-coordinator.

3. Placement and instruction matched to the student's career interest, aspiration and ability.

4. Pre-vocational education and guidance services which prepare the student for selecting the most appropriate training opportunity.

5. Special provisions for the disadvantaged or handicapped.

6. An advisory committee composed of representatives from business, industry, labor, the school, and students enrolled.

7. Full wages and credit toward graduation while receiving on-the-job instructions.

Currently there are seven major groups of co-op programs: 1) business and office procedure; 2) distributive services; 3) home economics hospitality; 4) trade and industrial skills; 5) off-farm agriculture businesses; 6) programs called diversified occupation services; and 7) health services. Each is designed to teach a different skill, but for the most part they all include the seven elements listed above. Their most distinguishing common characteristic is the feature of paid employment while learning. The student's experiences are those of a full-fledged employee rather than of an observer or aid.

In view of the considerable interest in cooperative vocational education all over the country, and the rapid growth of this kind of career education in Arizona, the program's supporters in the State Department of Vocational Education have made an analysis of features that are felt almost to insure valid instruction and applied learning:

1. Students are placed on jobs that are in harmony with their abilities and interests.

2. Each student follows a plan of on-the-job experiences which is based on occupational requirements and individual student needs.

3. Students have the opportunity to learn skills on real jobs under actual working conditions.

4. Classroom instruction, on-the-job training, and student club activities are articulated in the development of clearly identified competencies.

Diversified Occupations Co-op Students in Cochise County

5. Students have an active role in the choice of content and methods because of their unique experiences which incite them to seek education for their developing personal needs.

6. The teacher is not the sole authority. His teachings are supplemented with the practices and ideas of employers and employees of the occupational environment.

7. Students can better evaluate the contribution of general and vocational education in terms of their own needs and aspirations.

8. Students are able to identify with the world of work in a meaningful way.

9. Students encounter daily situations in an adult environment which cause them to examine their values and reappraise their potential in occupational and social situations.

10. Students receive the guidance of trained teacher-coordinators who have been "through the mill" in the occupational field when making vital vocational decisions.

11. Students make the transition from school to work gradually under the skilled guidance of a teacher-coordinator, giving them time to comprehend the significance of the learning situation and the world of work.

12. Students receive direct on-the-job contact with professionals whose responsibility it is to stay up-to-date in their profession.

13. Curriculum revision is more rapidly reflective of current occupational requirements.

14. Cooperative vocational education enables the student to relate education to his occupational interest at a period of life when it is natural for him to look outside the school for learning and earning.

15. Cooperative education may provide the most influential means of coordinating the home, the school, and the world of work in behalf of the student.

The State Department also lists the following observations of a closer relationship with the community through cooperative vocational education:

1. A closer partnership between the schools and the occupational world is necessary in order to maintain the proper relevance of training and the basic subjects to support the occupational training.

2. In cooperative vocational education the schools and the employing community are brought together on mutual educational problems that are within their power to understand and handle.

3. When employers engage in vocational education in their stores, shops, and offices, an appreciation of the school's problems is inevitable. This phenomenon holds for the school's understanding of employers' problems as well.

4. As the program expands to accommodate new groups of students, the need for wider community support grows and new groups are involved which introduce fresh perspectives on established policies and procedures.

5. Student achievement is accelerated when academic and employment environments are combined. The environmental experience in one supports and influences the experiences provided in the other.

6. Business and industry spokesmen, who participate with youth in cooperative education, may provide the community with vital understandings about education when they speak to civic clubs or in other ways to participate in community activities.

7. An excellent source of future employees may be developed by business, industry, and government through becoming involved with educators who are developing young people via cooperative education.

8. Employers and students have a chance for a trial acquaintance before full-time employment.

9. The two-way working relationship with the wider community adds quality and distinctiveness to the school as a whole.

Arizona's cooperative education program has received national recognition for its quality and growth. From three programs with less than 100 enrolled in fiscal year 1958, it has grown to ninety-seven programs and an enrollment of 2,431 in fiscal year 1970. Tables 56, 57, and 58 show the number and kinds of programs operated during the past year.

Table 56

Cooperative Vocational Education Programs in Arizona
1969-70

Secondary Schools

	Cooperative Program	Enrollment
Agriculture-Business Co-op	3	41
Distributive Ed.-Gen. Mdsg.	38	912
Distributive Ed.-Food Mdsg.	1	13
Distributive Ed.-Service Ed.	1	28
Diversified Co-op	12	379
Co-op Office Education	21	435
Industrial Co-op Education	17	547
Total	93	2,355

Community Colleges

	Cooperative Program	Enrollment
D.E. Mid-Management Co-op	3	44
Co-op Office Education	2	28
Industrial Co-op Education	1	4
Total	6	76

Data supplied by RCU Data Systems Division

Special emphasis on cooperative education has been recommended by the State Board and the State Superintendent for the next fiscal year. More than seventy new cooperative programs have been approved for implementation in the 1970-71 school year, with a projected enrollment of nearly 4,000. Community support has been very favorable and is one of the major reasons for the remarkable growth taking place. The mutual interest of students, employers, and other employees in their success is almost phenomonol. Spring employer-employee banquets are a widespread occasion throughout the state when employers and fellow employees are hosted by the cooperative students and thanked for their over-the-shoulder instruction.

Essentially, in cooperative education the community serves as a laboratory for the school. Instruction in the classroom is supplemented by practice on the job. Standards of performance are established which cannot be taught in any other way. It is described as "a real life experience bridged by instruction guided by the teacher-coordinator."

Table 57

Cooperative Programs in Arizona High Schools
1969-70

County	School	Program	Enrollment
Cochise	Benson Union	Diversified Occup.	17
	Bisbee	Diversified Occup.	50
	Buena	Diversified Occup.	29
	Douglas	Diversified Occup.	135
		Merchandising Co-op	24
	St. David	Diversified Occup.	9
	Tombstone	Diversified Occup.	10
	Valley	Diversified Occup.	24
Coconino	Coconino	Co-op Office Ed.	16
		Merchandising	16
	Flagstaff	Co-op Office Ed.	22
		ICE	47
Gila	Globe	Merchandising Co-op	20
Graham	Safford	Merchandising Co-op	28
Maricopa	Alhambra	Merchandising Co-op	35
		Co-op Office Ed.	25
	Arcadia	Merchandising Co-op	21
		Co-op Office Ed.	20
	Camelback	Merchandising Co-op	21
	Carl Hayden	Merchandising Co-op	23
		Co-op Office Ed.	26
		ICE	31
	Central	Merchandising Co-op	28
	Chandler	Merchandising Co-op	18
	Coronado	Merchandising Co-op	23
	Cortez	Co-op Office Ed.	23
	East	Merchandising Co-op	24
		ICE	26
	Glendale	Merchandising Co-op	14
		Co-op Office Ed.	18
		ICE	38
	Maryvale	Merchandising Co-op	29

Table 57 (cont'd)

County	School	Program	Enrollment
Maricopa (cont'd)	Mesa	Merchandising Co-op	21
		Co-op Office Ed.	18
		ICE	43
	North	Merchandising Co-op	26
		Co-op Office Ed.	24
	Phoenix Union	Merchandising Co-op	24
		Diversified Occup.	34
		Co-op Office Ed.	35
		ICE	25
	Saguaro	Merchandising Co-op	54
	South Mountain	Merchandising Co-op	57
		Co-op Office Ed.	43
	Sunnyslope	Merchandising Co-op	22
		ICE	25
	Washington	Merchandising Co-op	19
		Agriculture Co-op	11
		Co-op Office Ed.	19
		ICE	11
	West	Merchandising Co-op	18
		ICE	23
	Westwood	Merchandising Co-op	17
		Co-op Office Ed.	17
		ICE	24
Mohave	Kingman	Merchandising Co-op	15
Navajo	Holbrook	Merchandising Co-op	19
		Co-op Office Ed.	13
Pima	Winslow	Merchandising Co-op	23
	Amphitheater	Merchandising Co-op	17
	Catalina	Merchandising Co-op	25
		Co-op Office Ed.	20
	Flowing Wells	ICE	30
	Palo Verde	Merchandising Co-op	26
		Co-op Office Ed.	19
	Pueblo	Merchandising Co-op	23
		Co-op Office Ed.	19
		Service Education	28
		ICE	60
	Rincon	Merchandising Co-op	26
		Co-op Office Ed.	18
	Sahuaro	Merchandising Co-op	14
		Co-op Office Ed.	15
		ICE	6
	Sunnyside	Merchandising Co-op	22
		Diversified Ed.	24
		ICE	25
	Tucson	Merchandising	22
		Co-op Food Merchandising	13
		Co-op Office Ed.	19
		ICE	19
Pinal	Coolidge	Agriculture Co-op	14
	Voc. Training Center	ICE	8
Santa Cruz	Nogales	Merchandising Co-op	18
Yavapai	Prescott	Merchandising Co-op	17
		Co-op Office Ed.	16

Table 57 (cont'd)

	County	School	Program	Enrollment
	Yuma	Kofa	Merchandising Co-op	81
			Agriculture Co-op	16
			ICE	77
		Parker	Misc. Voc. Training	46
		Yuma	Diversified Occup.	10
Totals:	11	50	93	2,355

Data supplied by RCU Data Systems Division

Table 58

Cooperative Programs in Arizona Junior College
1969-70

	County	School	Program	Enrollment
	Cochise	Cochise College	Mid-Management Co-op	7
			Co-op Intern Office Ed.	11
	Graham	Eastern Arizona	Mid-Management Co-op	1
			Co-op Intern Office Ed.	17
	Maricopa	Mesa Community	ICE	4
		Phoenix	Mid-Management Co-op	36
Totals:	3	4	6	76

Data supplied by RCU Data Systems Division

Career Youth Organizations

The interest and ambition of a great many people in their adult careers begins in a vocational youth organization. Vocational agriculture for years has exercised a strong influence on the careers of high school students through the FFA, Future Farmers of America. Girls have had a somewhat different influence in FHA, Future Homemakers of America, in directing their goals toward homemaking as a career; but the two organizations have been largely complimentary.

In the past decade several more career youth groups have been organized to stimulate interest in other occupational areas. The oldest and strongest of these is DECA, Distributive Education Clubs of America, which followed the development of distributive education as a vocational program in the schools. VICA, Vocational Industrial Clubs of America -- was then organized for boys and girls preparing for careers in trade, technical, and industrial fields. A somewhat parallel organization, reflecting the historic distinction between trade and industrial courses and industrial arts courses, is AIAA, American Industrial Arts Association, with which the Arizona Student Industrial Arts Club is affiliated.

DECA Awards Banquet
Phoenix 1970

VICA Awards Banquet, Phoenix

Each of these organizations has a state affiliate and local school chapters. Their current strength is shown in Table 59. Originally established largely in high schools, these organizations are becoming increasingly important in post-secondary institutions, especially community colleges. Their purpose is primarily to stimulate career interest, and the older groups at least have been highly effective in this respect. They serve as a focal point in the schools for students with similar interests and as social organizations for both teachers and students. Invariably they place strong emphasis on the traditional virtues of American working people. They tend to give students not only an opportunity to share common interest but also a sense of direction at a time in their lives when they need it most.

Table 59

Career Youth Organizations in Arizona

Organization	National Membership	Number Chapters in Arizona	Arizona Membership
ASIAC Arizona Student Industrial Arts Club	2,880	2	20
DECA Distributive Education Clubs of America	108,000	52	2,275
FFA Future Farmers of America	405,000	40	2,220
FHA Future Homemakers of America	604,000	70	1,878
VICA Vocational Industrial Clubs of America	100,000	20	500

Data supplied by State Department of Vocational Education

The potential of these organizations in career preparation is almost unlimited, and with capable leadership at the state level as well as in the schools they could be expanded to fill much of the vacuum that now exists among large numbers of teenagers lacking a real purpose in life. Their potential value to future employers is so great that substantial support should be available for this source, resulting in another bridge between the schools and the world of work. Support from the industry is in fact, a dominant feature of the oldest and one of the most successful of these groups, the Future Farmers of America.

CHAPTER V

PROGRAM PLANNING AND BUDGETING

The Federal government should invest at least as much money in reducing the flow of untrained youth as it invests in reducing the pool of unemployed, and most of the Federal investment should be concentrated in paying the additional cost of vocational and technical programs of career preparation (as compared with programs which prepare for further education) in high schools and post-secondary institutions.

-- Second Report of the National Advisory Council on Vocational Education, November 15, 1969

Arizona has developed its career education in high schools and community colleges under a planning system written into both state and federal statutes. In Arizona the vocational legislation of 1962 and the Community-Junior Colleges Act of 1960 provide for an orderly growth and development under two State Boards, one for Vocational Education, and the other for Junior Colleges. The Executive Officer and State Director of the Board for Vocational Education are also members of the Junior College Board, and coordination between these agencies has been quite successful. In addition, the Arizona Statutes provide for a State Advisory Council representing a cross section of the public, State agencies, and employers.

A basic State Plan has been prepared by the State Department of Vocational Education since the Smith-Hughes Act of 1917 and it was updated many times until federal legislation called for a complete revision in 1963. The Advisory Council has been very active and very much a part of the planning system, with the result that Arizona's development of career education in the 1960's has been well designed and well coordinated by all agencies and institutions involved.

Adult manpower training became a responsibility of vocational education in the Manpower Development and Training Act of 1962, and this responsibility was closely coordinated with recruitment, selection, and placement by the State Employment Service. Systematic planning of all career education and training was provided by Congress in the Vocational Education Act of 1963; however, both the planning provisions and State Advisory Councils at that time were largely optional. In the Vocational Education Amendments of 1968, they were made mandatory. Each state now must not only have an advisory council and prepare a state plan annually with short and long-range objectives one and five years ahead, but their composition and content are spelled out in great detail.

It is through the planning provisions of the 1968 Amendments that career education is beginning to develop a complete program planning and budgeting system today. Federal funds and matching state funds are now required to be budgeted according to performance programs rather than institutional allocations. The State Department of Vocational Education is well along in making this transition and is working with the schools to develop performance budgeting in career education at that level. It requires a major overhaul of bookkeeping and accounting practices and will take several years and considerable adjustment for complete implementation.

The first year of planning under the 1968 Amendments was taken up almost entirely by the federal government in developing guidelines and regulations. State plans for that year, 1969-70, were major efforts simply to conform to a series of strange and awkward guidelines coming out of the U.S. Office of Education. Approval of these plans by the U.S. Office was withheld in nearly every case until the year was well underway because of obvious imperfections. Few if any of the plans could be considered adequate, and while they changed a great deal of the organizational structure of career education their attempts at relating programs in the schools to performance budgets were experimental at best.

The second year of planning under the new system has required extensive additional time and effort on the part of the State Department staff, and the experience of previous years has made it possible for Arizona to have made significant progress by this time toward a complete program planning and budgeting system. The state plan for 1970-71 is considerably refined from last years, and although reliable data for making projections are still lacking in some areas it represents the most advanced attempt up to this time to set realistic performance goals and describe the means by which they may be reached. It is this plan, described on the following pages, which contains the major provisions for career education and skill training by local, state, and federal agencies in Arizona.

Table 60

Vocational Education Projected Enrollment

Level of Program	1971	1972	1973	1974	1975
Secondary					
Grades 9-12	39,828	41,818	43,913	46,108	48,413
Post-Sec. - Adult	17,411	18,286	19,200	20,160	21,168
Post-Secondary	8,771	9,209	9,669	10,152	10,659
Adult	12,972	13,620	14,301	15,016	15,776
Totals	78,982	82,933	87,083	91,436	96,016
Special Programs					
Disadvantaged Total*	5,878	6,171	6,480	6,804	7,144
Secondary	3,053	3,205	3,365	3,533	3,709
Post-Secondary	145	152	160	168	177
Adult	2,680	2,814	2,955	3,103	3,258
Handicapped Total*	1,067	1,120	1,176	1,204	1,264
Secondary	1,067	1,120	1,176	1,204	1,264
Cooperative Prgms. Total* (G)	1,982	2,081	2,185	2,294	2,409
Secondary	1,730	1,816	1,907	2,002	2,097
Post-Secondary	252	265	278	292	312
Group Guidance Total ** (Pre-Voc.)	450	473	500	600	650
Work-Study Total*	450	495	545	599	660
Secondary	250	275	303	333	366
Post-Secondary	200	220	242	266	293
Consumer & Homemaking Ed. Total*	24,739	26,027	27,328	28,694	30,128
Secondary	20,214	21,224	22,285	23,399	24,568
Adult	4,525	4,803	5,043	5,295	5,560

*Totals for these Special Programs are included in the totals by levels.
**This total not included in the totals by level.

Data supplied from Arizona State Plan

Planning For The Next Five Years

A total enrollment of 78,982 is expected in secondary, post-secondary, and adult vocational education during the coming year. This is planned to go to 96,016 by 1975. The number of institutions is expected to grow from 131 to 188. The number of teachers in vocational education programs will increase from 1,059 to 1,151. The total cost of teaching and administration is expected to increase from $9,989,296 to $14,625,328. Tables 60, 61, 62, and 63 provide a breakdown of these figures annually from 1971 through 1975 as projected in the state plan.

In the secondary schools an increase of at least 10% per year in enrollment is planned, with eight new programs for rapid growth occupations per year. Trend lines of information on placement and followup in terms of labor market opportunities are to be developed. Procedures and instruments for the evaluation of vocational education programs are to be developed at the same time and a minimum of five such evaluations of vocational education in local school districts are planned each year by the State Department of Vocational Education. Special emphasis is to be placed on cooperative work experience programs with an increase of up to 20% per year in the enrollment of vocational education students in such programs. Another area of special emphasis will be the expansion of vocational education in economically depressed parts of the state through multiple use of facilities and programs by students in several schools. Multi-school programs are expected to increase from three in the past year to ten by 1975. It is also planned to have at least one vocational counselor in each secondary school in Arizona by 1975 compared with altogether only sixty who are qualified at the present time.

Table 61

Projected Growth of Vocational-Technical Education Teaching Staff
In Arizona, 1971-75

	Level of Program														
	1971			1972			1973			1974			1975		
	S	PS	A	S	PS	A	S	PS	A	S	PS	A	S	PS	A
Total No. Teachers (Unduplicated)	1059	369	413	1100	394	436	1080	413	460	1113	437	489	1151	460	517
Special Programs:															
Exemplary	49	-	-	55	5	-	-	-	-	-	-	-	-	-	-
Guidance (Pre-Voc.)	338	6	6	340	7	7	343	8	8	350	10	10	353	12	12
Pre-Post-Second.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Basic Education	4	4	10	6	6	12	8	8	14	10	10	20	12	12	24
Coop Part G	66	12	-	69	12	-	73	13	-	77	13	-	81	14	-
Disadvantaged	34	15	24	35	16	26	37	17	28	39	18	30	41	19	32
Handicapped	31	-	-	32	-	-	32	-	-	33	-	-	33	-	-
Occupational Programs:															
Agriculture	51	10	7	53	10	7	56	11	8	59	12	8	62	12	9
Distributive Educ.	55	7	150	57	7	157	59	8	164	62	8	171	65	9	178
Health	23	120	23	25	126	25	27	132	27	29	138	29	32	144	32
Home Ec. Useful	197	-	-	207	-	-	214	-	-	222	-	-	229	-	-
Home Ec. Gainful	14	9	-	15	9	-	16	10	-	16	11	-	17	11	-
Office Education	65	38	83	68	40	87	71	42	91	74	45	95	78	47	99
Technical	-	74	-	-	78	-	-	82	-	-	86	-	-	90	-
T & I	132	74	110	138	78	115	144	82	120	142	86	126	148	90	131

*S = Secondary; PS = Post-Secondary; A = Adult

Data supplied from Arizona State Plan

At the post-secondary level an increase in enrollment of up to 38% is planned by 1975, with expansion in areas of special concern similar to those in the secondary schools. A minimum of one counselor for every 500 occupational students and one full-time occupational placement director for each community college campus, a 10% increase per year in the enrollment of vocational education students in cooperative programs, ten new vocational programs for rapid growth occupations, evaluation procedures and instruments with a minimum of one evaluation per year, and planning and development of vocational facilities are all built into the post-secondary planning program. Non-credit courses in post-secondary vocational education for adults are available in only eight counties at the present time, and it is planned to offer a minimum of one such course in each county by 1975. Total enrollment of regular students is expected to double from 9,000 to 18,000 at the same time that a major change in funding practice will move about 20,000 additional post-secondary students from adult enrollment to junior college status giving a more accurate measure of the total scope of career education in Arizona's community colleges.

Table 62

Projected Growth of Schools Offering Vocational Education
And Expected Enrollments in Arizona, 1971-1975

	1971		1972		1973		1974		1975	
Type of School	No.	Enrol.	No.	Enrol.	No.	Enrol.	No.	Enrol.	No.	Enrol.
Specialized Secondary	-	-	-	-	-	-	-	-	-	-
Vocational-Technical Post-Secondary	1	1,875	1	1,945	1	2,000	1	2,125	1	2,300
Regular or Comprehensive Secondary	104	38,108	109	39,103	114	40,963	119	43,011	124	45,161
Junior or Community College*	11	25,627	11	26,907	11	28,252	11	29,664	12	31,147
College or University (Adult Non-Credit)	3	12,972	3	13,620	3	14,301	3	15,016	3	15,766
Secondary, Post-Secondary Combination	-	-	-	-	-	-	-	-	-	-
Other Public Institution	-	-	-	-	-	-	-	-	-	-
Private (Under Contract)	12	400	22	650	31	950	40	1,200	48	1,450
Total	131	78,982	146	82,225	160	86,466	174	91,016	188	95,824

*Converting some adult enrollment to regular community college enrollment.

Data supplied from Arizona State Plan

Vocational education planning for the disadvantaged includes continuation of eleven programs now in operation at the Ft. Grant Industrial School; six programs in the State prison in Florence; approximately 2,000 "WIN" trainees; three programs for the Maricopa Detention Home with expansion to include provision for girl referrals; and seven needletrades programs in rural and underdeveloped communities. In addition, it is planned to develop curriculum materials to prepare teachers for teaching the disadvantaged; to develop trend lines of information on placement and followup in terms of labor market opportunities; to develop and implement an instrument for the evaluation of disadvantaged programs with at least three such evaluations per year; and if additional funding is available to implement programs for school dropouts in five of the major cities in Arizona and provide two additional adult disadvantaged

Table 63

Cost Estimates For Vocational Education In Arizona, 1971-1975

Programs/Purpose	Funds	1971	1972	1973	1974	1975
State Programs	Total	7,233,844	7,957,228	8,752,951	9,628,246	10,591,071
Part B	Federal	3,489,373	3,838,310	4,222,141	4,644,355	5,108,791
	S & L	3,744,471	4,118,918	4,530,810	4,983,891	5,482,280
Secondary (F,S,L)	Total	3,009,114	3,310,025	3,641,028	4,005,131	4,405,644
Post Secondary	Total	1,600,000	1,760,000	1,936,000	2,129,600	2,342,560
Adult	Total	435,000	478,500	526,350	578,985	636,884
Disadvantaged	Total	700,000	770,000	847,000	931,700	1,024,870
Handicapped	Total	397,492	437,241	480,965	529,061	581,967
Guidance & Counseling	Total	120,000	132,000	145,200	159,720	175,692
Contracted Instruction	Total	70,538	77,592	85,351	93,886	103,275
Ancillary Services	Total	901,700	991,870	1,091,057	1,200,163	1,320,179
Section 102 (b) State Programs Disadvantaged (all Federal)		224,684	247,152	271,867	299,054	328,959
Research and Training	Total	164,000	180,400	198,440	218,284	240,112
Part C	Federal	59,000	64,900	71,390	78,529	86,382
	S & L	105,000	115,500	127,050	139,755	153,730
Exemplary Programs	Total	110,408	121,449	133,594	146,953	161,648
Part D	Federal	110,408	121,449	133,594	146,953	161,648
	S & L					
Residential Schools	Total					
State Programs	Federal					
Part E	S & L					
Consumer & Homemaking	Total	1,647,660	1,812,426	1,993,669	2,193,036	2,412,340
Education	Federal	167,660	184,426	202,869	223,156	245,472
Part F	S & L	1,480,000	1,628,000	1,790,800	1,969,880	2,166,868
Cooperative Education	Total	550,000	605,000	665,500	732,051	805,256
Part G	Federal	322,227	354,450	389,895	428,885	471,773
	S & L	227,773	250,550	275,605	303,166	333,483
Work Study	Total	58,700	64,570	71,027	78,129	85,942
Part H	Federal	46,954	51,649	56,814	62,495	68,745
	S & L	11,746	12,921	14,213	15,634	17,197
Grand Total	Total	9,989,296	10,988,225	12,087,048	13,295,753	14,625,328
	Federal	4,420,306	4,862,336	5,348,570	5,883,427	6,471,770
	S & L	5,568,990	6,125,889	6,738,478	7,412,326	8,153,558

Data supplied from Arizona State Plan

programs and twenty high school disadvantaged programs. Special planning in vocational education for the handicapped includes continuation of a project for approximately 150 teenagers in the Tucson area who are potential dropouts, mentally retarded, or special education students, and increasing this program to about 215 by 1975; a project for educable mentally retarded trainees at the Children's Colony; special education programs in five high school districts in addition to the four districts where such programs are already in existence; implementation of three additional occupational programs at the Arizona School for the Deaf and Blind; development of curriculum materials to prepare teachers for teaching the handicapped; developing trend lines of information on placement and followup in terms of labor market opportunities; and development and implementation of an instrument for the evaluation of vocational programs for the handicapped, with at least three such evaluations per year.

Research planning includes the design and development of research which will assist in the implementation of new programs, increased efficiency in vocational education, and exploring new concepts in vocational education, new and emerging occupations, and new relationships with other educational disciplines working toward an educational system in which career and academic education are more closely interrelated. All research materials of any significance from within and out of the State in vocational-technical education will continue to be acquired and catalogued. These materials will continue to be made available to educators through a computer-assisted search and retrieval system. Research reports which seem to have special significance will be reviewed by specialists in the state. Research information will continue to be published and distributed to all vocational-technical educators and administrators. Research conferences will be scheduled each year for selected groups of vocational-technical educators and administrators. Individual student enrollment data will continue to be collected and processed by computer for purposes of federal and state reporting, planning, administration, and research. Followup data on students who complete vocational programs will continue to be collected and processed annually. It is also planned by 1975 to have a complete data system in vocational-technical education which will include an equipment inventory, cost accounting/cost effectiveness, and student data banks for computer-assisted career counseling. Table 64 lists the research-related priorities in Arizona for the next five years.

Closely related to research are plans for implementing a number of exemplary programs each year supported by special provisions of the Federal Amendments of 1968. These are programs based on research which attempt to achieve new purposes and new results in career education. They will include inter-agency involvement and participation in serving the needs of students not met through conventional programs; concentrated programs designed to prepare untrained persons for gainful employment; curriculum materials designed to equalize educational opportunity for individual students; programs at all levels using an inter-disciplinary cross cultural concept; and projects designed to bring about changes in teacher attitudes and practices in making education relevant to the world of work.

Under special funding programs in consumer and homemaking education Arizona will attempt to develop and disseminate a consumer and homemaking curriculum model for use by all local educational agencies; offer fifteen additional programs in consumer and homemaking education with special emphasis on meeting the needs of the disadvantaged and handicapped; increase from twelve to twenty-two programs with special emphasis for persons in economically depressed areas; provide pre-service and in-service programs for teachers stressing the use of multi-media learning materials; and working with multi-agencies in preparing youth and adults for the dual role of homemaker and wage earner.

Under another special funding program by the federal government cooperative education will be strengthened and considerably expanded. One hundred new programs are planned by 1975. Six teacher training programs will be conducted annually for co-op teachers. Trend lines of information on placement and followup in terms of labor market opportunities will be developed. An instrument for the evaluation of

Table 64

Research Priorities In Arizona, 1971-1975

		Fiscal Year				
		71	72	73	74	75
A.	Research Development (continuous)	X	X	X	X	X
B.	Research Dissemination (continuous collecting, coding, storing, search and retrieval of ERIC, AIM & ARM microfiche, relevant publications, and bibliographical materials.)	X	X	X	X	X
(1)	In state professional reviews of 25-50 significant research reports annually.	X	X	X	X	X
(2)	Publish 8-10 issues of research newsletter annually.	X	X	X	X	X
(3)	Conduct 3-4 research conferences annually.	X	X	X	X	X
(4)	Review and update coding of 5,000 library materials annually. Reassign materials of little importance to a second level computer file, limiting first level file for primary search and retrieval to 10,000.	X	X			
(5)	Select and send to target individual educators 10-20 current research reports annually which are determined by professional in-state review to be potentially beneficial to those educators.	X	X	X	X	X
C.	Data Systems					
(1)	Collect and process enrollment and followup data from all regular voc-ed, adult voc-ed, industrial arts and home economics useful students.	X	X	X	X	X
(2)	Add MDTA Students.	X				
(3)	Add other manpower and OEO Students.	X	X			
(4)	Add all Arizona high school students.			X		
(5)	Add equipment inventory control system.	X				
(6)	Add cost-accounting, cost-effectiveness system.		X			
(7)	Add first five-year followup.			X		

Data supplied from Arizona State Plan

cooperative programs will be developed and at least three such evaluations will be made each year. Co-op programs will be systematically publicized through a series of meetings and presentations to service organizations, and a variety of in-service education activities are planned for developing and updating the competencies of educators responsible for co-op programs. Table 65 contains a list of specific objectives in cooperative education in Arizona by 1975.

Table 65

Cooperative Education In Arizona By 1975

Objectives:	Current	Outcomes Sought			
		1971		1975	
a. No. of instructional programs		Co-op(B)	Co-op(G)	Co-op(B)	Co-op(G)
1. Counting an OE code once	6	6	7	7	8
2. Total number of programs	80	80	90	80	125
b. Number of Secondary Schools offering programs	48	44	40	50	55
c. Number of Post-Secondary Colleges offering programs	7	7	9	7	12
d. Number of employers participating	450	470	400	530	750
e. Number of Training Stations	1,200	1,250	1,500	1,700	2,000

Data supplied from Arizona State Plan

Plans for expanding vocational guidance in the schools include providing at least one vocational counselor in each secondary and post-secondary school in Arizona having occupational programs; working with the three universities in planning graduate programs to prepare career orientation coordinators; providing at least one project and/or program per year to help local school personnel in occupational counseling; providing at least five projects and/or programs designed to change teacher attitudes and practices in making education relevant to the world of work; providing a series of workshops in career orientation for selected representatives from all districts in all of the fourteen counties; organizing and disseminating a list of sources of career guidance information; providing all educational agencies with information defining career orientation; at least one presentation on the career ladder concept and the occupational spiral curriculum to all students in secondary vocational programs; and implementing programs at all educational levels using an inter-disciplinary cultural concept as it relates to career development and self choice.

In vocational teacher education it is planned to have at least one in-service and/or pre-service vocational counselor program per year for secondary and post-secondary teachers dealing with the world of work; at least five in-service programs designed to upgrade teachers in teaching the disadvantaged and handicapped; at least one pre-service program for occupational teachers of the handicapped and disadvantaged; a minimum of five pre-service and/or in-service programs stressing the use of multi-media learning materials for vocational programs; three in-service and/or pre-service programs per year for teachers working with cooperative vocational programs; five in-service and/or pre-service programs orienting teachers toward attitudes and practices making education relevant to the world of work; one graduate program to prepare career orientation coordinators; and at least five in-service and/or pre-service programs for general education teachers which will enable them more effectively to relate their curriculum areas to the world of work.

In occupation youth group activities, a minimum of five presentations to selected school districts on the co-curricular concept of such activities as related to vocational programs are planned in the next five years. A new multi-youth group concept for at least fifteen selected activities will be promoted. At least ten multi-youth activities will be conducted including conferences, meetings, competitive judging contests, and exhibits on the state, district, and local levels. At least a 10% increase in occupational youth group membership is planned. A system for combined youth group publication, printing and promotional materials will be developed and implemented. A minimum of five workshops for advisory personnel to state and local educational agencies will be conducted on the purposes, functions, operation, and goals of youth organizations. At least one new occupational youth group will be organized in addition to the five that are now active in Arizona.

The Year Ahead

Arizona schools are planning to enroll nearly 80,000 vocational-technical students during the coming year, and nearly 60,000 of these will complete their training. Roughly 44% of the enrollment will be in secondary schools, and nearly two-thirds of these will be home economics-useful students. About 10% of the total enrollment will be in technical education programs at the post-secondary level. One-third of the total enrollment will be adults either preparing for new careers or supplementing their training programs. The cost of instruction and administration is expected to equal a little more than seven and a quarter million dollars, or just under $100.00 per student. This does not include many of the overhead costs of education and training, but represents the best estimate at this time of the actual cost of vocational and technical programs in the Arizona school system. In addition, there are special allocations for research, exemplary, consumer and homemaking, co-op programs, and work-study which equal slightly more than two and three-quarter million dollars. This brings the total known cost of training and support services to approximately $125.00 per student in the State Plan for 1970-71. Table 66 shows the state plan enrollment and expend[illegible] projections.

Table 66

State Plan Enrollment And Expenditure Projections For 1971

Program/Purpose	No. of Pgms	Enrollment	Total Funds
Secondary	673	33,973	$3,009,114
Post-Secondary	243	8,503	1,600,000
Adult	1,285	29,947	435,000
Disadvantaged	59	1,669	700,000
Handicapped	27	718	297,492
Cooperative Programs (B)*	85	2,190	
Cooperative Programs (G)		1,982	550,000
Contracted Instruction			70,538
Guidance/Counseling	220	(600)	120,000
Ancillary Services			901,700
Total	2,592	78,982	$7,683,844
Special Programs:			
Disadvantaged (Sect. 102)			224,684
Research			164,000
Exemplary			110,408
Consumer & Homemaking		(24,739)	1,647,660
Work-Study		(450)	58,700
Total		(27,171)	$2,755,452

*Funds included in the totals for secondary and post-secondary education.

Data supplied from Arizona State Plan

Enrollments for 1970-71 in all programs are planned to be increased 10% or more over the previous year, with increasingly stronger emphasis on co-op programs. Of the 119 secondary schools in Arizona, 107 will offer one or more vocational education programs. All eleven community colleges, the three state universities, and twelve private schools under contract will also offer technical or vocational education. The total number of programs will be 2,423, an increase of 714 over the previous year.

Table 67 shows a breakdown of these programs by service and purpose with the number of teachers, estimated enrollment and estimated completions for 1971. At the secondary level home economics useful will lead in enrollment with an estimated 20,214, and expected completion of 16,890. Trade and industry will follow with an anticipated enrollment of 4,000, and 2,170 completions. Office education is third with 3,800 enrollment, and 1,500 completions.

Special secondary programs for the disadvantaged are to be offered in agriculture, home economics useful, office education and trade and industry, with an estimated enrollment in these programs of 1,008, and completions of 801. About one-half of the total enrollment and completions for disadvantaged will be in trade and industry. Special programs for the handicapped will be offered at the secondary level in agriculture, distributive education, home economics useful and gainful, office eudcation, and trade and industry. The estimated total enrollment in these programs will be 718, with completions estimated at 544.

The largest special purpose programs in secondary education are the cooperative programs. These will be offered in the following areas: agriculture, with an anticipated enrollment of ninety-seven and completions of twenty-five; distributive education, with 1,105 enrolled and 915 completions; health, with fifty-seven enrolled and forty completions; home economics gainful, with 173 enrolled and 138 completions; office education, with 720 enrolled and 590 completions; and trade and industry with 1,140 enrolled and 935 completions. A total enrollment of 3,292 cooperative education students and 2,643 completions will equal almost 1% of the total vocational education enrollment. In addition, twenty-five diversified occupation cooperative programs with 628 enrollments and 495 completions are also planned at the secondary level.

Post-secondary enrollments for credit are expected to be highest in office education with 2,500 enrolled and 2,000 completions. Trade and industry will follow with 2,095 enrolled and 1,318 completions. Technical and health programs are planned for enrollments of over 1,000 each. A program for the disadvantaged will be offered at the post-secondary level in trade and industry, with an estimated enrollment of 145 and completion of 120. Post-secondary programs in cooperative education will be available in agriculture, distributive education, office education, technical education, and trade and industry, with a total enrollment expected of 252 and completions of 120. This includes the post-secondary diversified programs. The largest post-secondary enrollment is expected to be in non-credit adult programs, with a total of 17,386 anticipated and 15,623 completions. Five thousand three hundred forty-one of these are expected to be in technical education, with 4,635 completions.

Regular adult programs will be offered in agriculture, distributive education, health, home economics useful, office education and trade and industry, with the largest enrollment expected to be in adult distributive education and trade and industry. Adult classes for the disadvantated will also be available in agriculture, health, and trade and industry. Enrollment in these disadvantaged programs is expected to be 436, with 354 completions.

Table 67

Instructional Programs Planned For 1971

Program	Purpose	No. of Programs	No. of Teachers	Estimated Enrollment	Estimated Completion
Agriculture	Secondary	108	51	2,990	495
	Sec. Disadvantaged	5	6	178	30
	Sec. Handicapped	3	3	32	5
	Sec. Co-op	4	4	97	25
	Post-Secondary	13	10	400	65
	P-Sec. Co-op	3	3	45	20
	Adult	7	7	85	45
	Adult-Disadv.	3	3	36	20
Distributive Ed.	Secondary	44	55	1,800	100
	Secondary Co-op(B & G)	14	12	1,105	915
	Post-Secondary	9	7	254	49
	Post-Secondary Co-op	1	1	64	12
	Post-Secondary Adult	24	14	1,030	850
	Adult	228	150	8,700	8,300
	Secondary Handicapped	1	1	20	18
Health	Secondary	12	23	650	492
	Secondary Co-op	3	3	57	40
	Post-Secondary	25	130	1,650	973
	Post-Secondary Adult	16	22	485	421
	Adult	15	23	403	335
	Adult-Disadvantaged	14	16	270	205
Home Economics (Gainful)	Secondary	14	14	519	416
	Sec. - Handicapped	8	8	226	181
	Sec. - Co-op	7	7	173	138
	Post-Secondary	9	9	352	282
	Post-Secondary Adult	2	4	154	123
Home Economics (Useful)	Secondary	271	197	20,214	16,890
	Sec. Disadvantaged	7	7	350	311
	Sec. - Handicapped	2	2	150	140
	Post Sec. - Adult	142	171	4,525	4,392
Office Education	Secondary	93	65	3,800	1,500
	Sec. Disadvantaged	3	3	60	40
	Sec. Co-op (B & G)	34	34	720	590
	Sec. Handicapped	2	2	40	25
	Post-Secondary	40	38	2,500	1,000
	Post-Sec. Adult	102	87	2,150	2,000
	Post-Sec. Co-op	3	3	73	30
	Adult	101	83	1,500	1,305
Technical	Post-Secondary	73	74	1,252	327
	Post-Sec. Adult	313	319	5,341	4,635
	Post-Sec. Co-op	3	3	30	28
Trade & Industry	Secondary	131	132	4,000	2,170
	Sec. -Disadvantaged	14	18	500	420
	Sec. Handicapped	11	15	250	175
	Sec. Co-op	34	30	1,140	935
	Post-Secondary	74	74	2,095	1,318
	Post-Sec. Adult	228	241	3,701	3,202
	Post-Sec. Disadv.	7	15	145	120
	Adult	105	110	1,848	1,589
	Adult Disadv.	5	5	120	129
	Sec. - Diversified	25	25	628	495
	Post-Sec. - Diversified	2	2	40	30

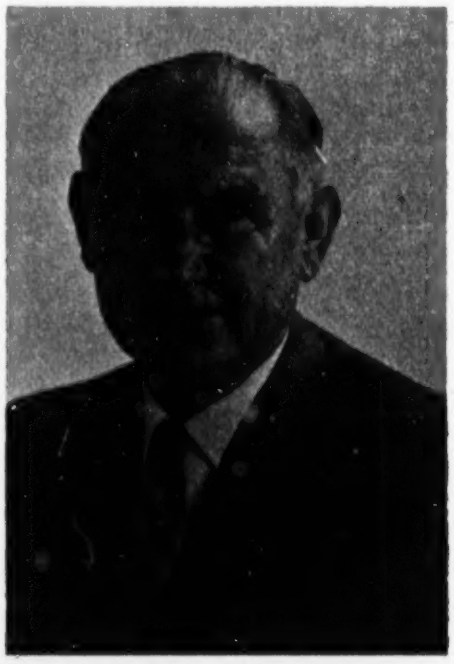
Data supplied from Arizona State Plan

State Administration

The principal features of administrative responsibility for vocational education are the same in nearly every state. They were developed under the first federal support legislation in the 1920's, and in spite of extensive growth and changes that have taken place since then they have served quite well. The most important restructuring of administrative machinery in fifty years has taken place under the Vocational Education Amemdments of 1968, but even the changes mandated by that Act have left basic patterns much the same. A State Board for Vocational-Technical Education has sole responsibility for distributing state and federal support funds as provided by law, and the actual administration of those funds is delegated to a State Department of Vocational-Technical Education responsible to the Board.

The State Department is headed by a Director, and the close relationships he must maintain with both the U.S. Office of Education and his own state educational agency have tended to make this a very stable office. The Director delegates most of the details of administration to a professional staff, divided until this year into "services." Each service corresponded to a particular training area authorized under one of the federal acts. The Amendments of 1968 redirected federal emphasis from kinds of training to kinds of people being trained, and traditional state department service alignments have been correspondingly shifted to other functions.

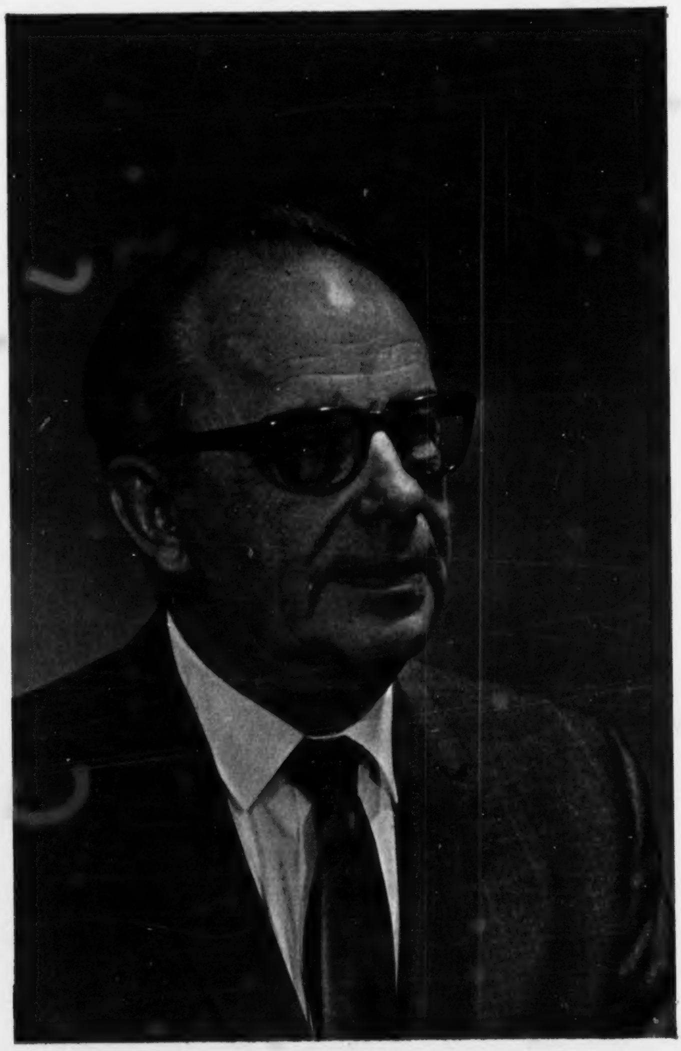
In Arizona, as in most (but not all) states, the membership of the Board for Vocational Education is the same as that for the State Board of Education. The State Board of Education is responsible for the elementary and secondary education programs in the state, however the State Board for Vocational Education has the responsibility for all manpower training. This includes contractual relationships with all educational institutions in the state both public and private. There is some confusion in Arizona as to whether vocational education is a department within the Department of Public Instruction or simply a division. It has always been



Dr. Weldon P. Shofstall
State Superintendent of Public Instruction
And Executive Officer of the State Board for Vocational Education

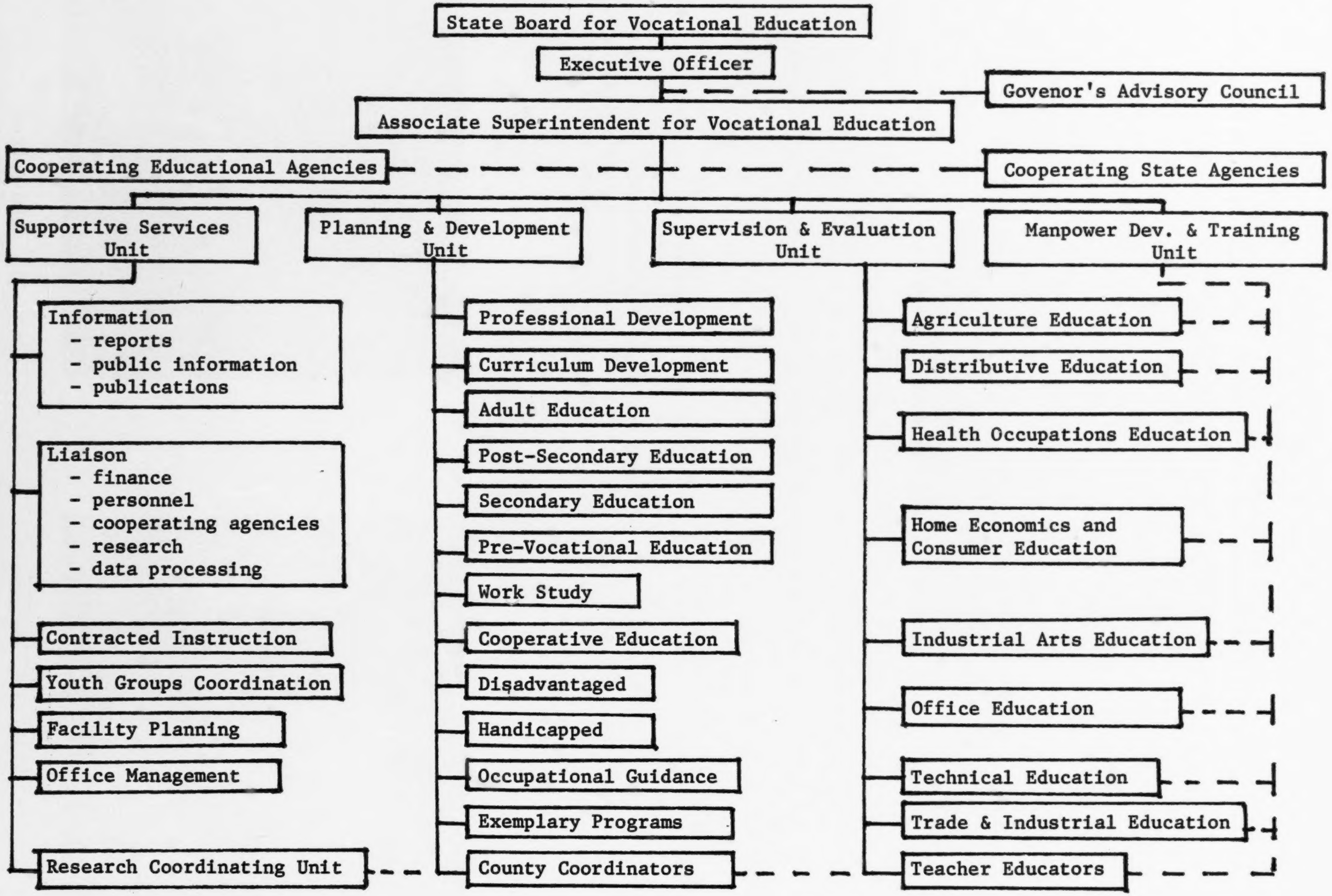
designated as the Department of Vocational Education, and while never a separate agency its functions are clearly distinct from those of other divisions in the Department of Public Instruction. In recent years, as vocational education and general education have had a tendency to develop increasingly common objectives, greater cohesion has also been evident in the state educational agency. The Director of Vocational Education has been designated as Associate Superintendent in the Department of Public Instruction, and his staff works closely with other professional personnel throughout the department.

The vocational staff organization has been completely redesigned this year, with five units replacing eight previous services. Table 69 shows the new alignment of responsibilities under four of the units; the fifth is an administrative unit made up of the Director and Assistant Directors who head the supportive services, planning and development, supervision and evaluation, and manpower development and training units. The administrative unit has responsibility for maintaining liaison with cooperating state agencies and educational agencies in determining manpower and vocation needs throughout the state; the coordination of activities related to supportive services, supervision and evaluation, planning and development, and manpower development and training; the determination of budget requirements and the management of fiscal matters; and the overall implementation and coordination of the state plan.



Mr. J. R. Cullison
Associate Superintendent and Director of Vocational Technical Education

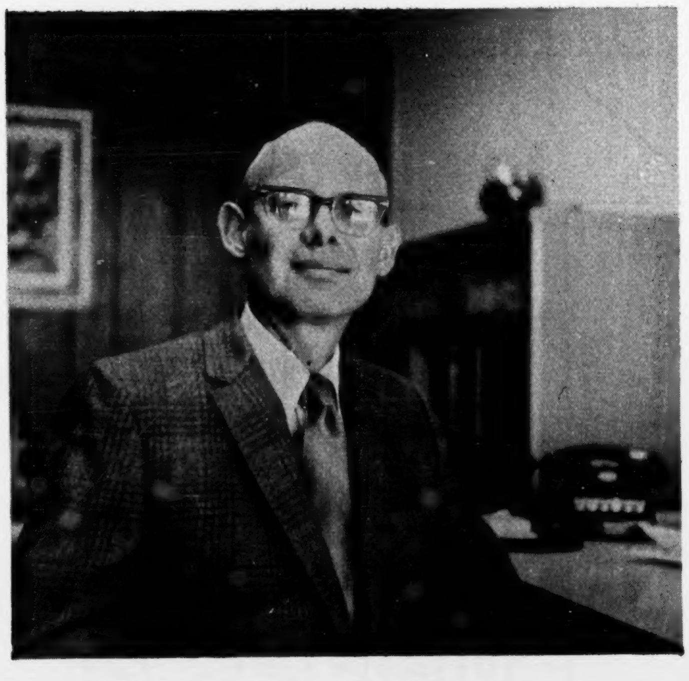
Table 68


State Board for Vocational Education
Executive Officer
Govenor's Advisory Council
Associate Superintendent for Vocational Education
Cooperating Educational Agencies
Cooperating State Agencies
Supportive Services Unit
Planning & Development Unit
Supervision & Evaluation Unit
Manpower Dev. & Training Unit
Information
- reports
- public information
- publications
Liaison
- finance
- personnel
- cooperating agencies
- research
- data processing
Contracted Instruction
Youth Groups Coordination
Facility Planning
Office Management
Research Coordinating Unit
Professional Development
Curriculum Development
Adult Education
Post-Secondary Education
Secondary Education
Pre-Vocational Education
Work Study
Cooperative Education
Disadvantaged
Handicapped
Occupational Guidance
Exemplary Programs
County Coordinators
Agriculture Education
Distributive Education
Health Occupations Education
Home Economics and Consumer Education
Industrial Arts Education
Office Education
Technical Education
Trade & Industrial Education
Teacher Educators

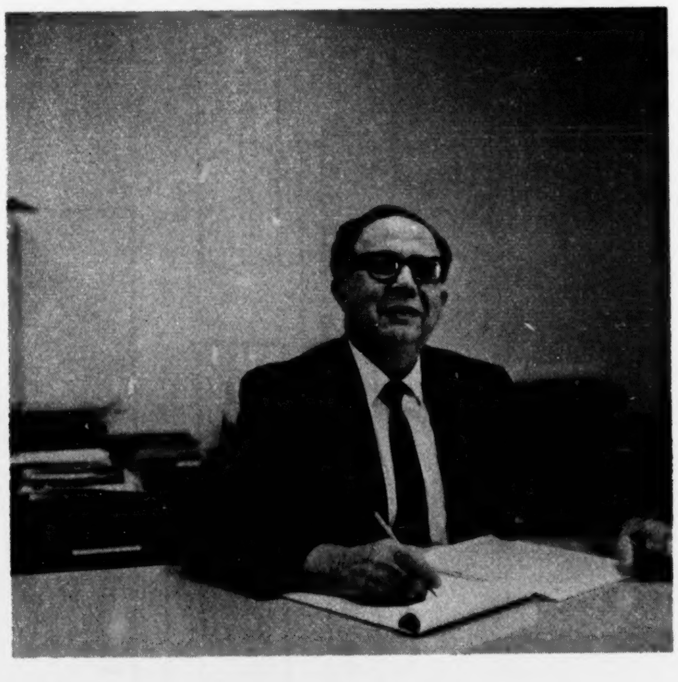
Data supplied from Arizona State Plan

Mr. Eugene L. Dorr
Assistant Director of Vocational Education

The supportive services unit is made up of the Comptroller, the Research Coordinating Unit Director, and the State Supervisors and Assistant State Supervisors who are responsible for contracted instruction, youth group coordination, facility planning, office management, and informational liaison. This unit's responsibilities include preparation of reports as required by the State Board and the Commissioner; the development of data and information as required for program planning, development, supervision and evaluation; the development of publications and other media for use in interpreting vocational education; arrangements for area meetings, workshops, conferences and youth group activities; and liaison among the divisions of vocational education and cooperating state educational and manpower agencies.



Mr. William J. Anderson
Assistant Director of Vocational Education



Mr. John Dutton
Assistant Director of Vocational Education

The supervision and evaluation unit is made up of the administrator, a representative from the research coordinating unit, the county coordinators of vocational education, manpower development and training representatives, and the state supervisors and assistant supervisors of agriculture, distributive education, health, home economics, office education, technical education, trade and industry, and industrial arts. Responsibilities include processing matters relating to existing programs; coordinating pre-service and in-service teacher education; providing curriculum services; and providing evaluation services related to program, staff, and facilities.

The planning and development unit is comprised of the unit administrator, the coordinator of teacher education, a representative of the research coordinating unit, a manpower and training representative, the county coordinators, and the state supervisors and assistants who are assigned to adult, post-secondary, secondary, pre-vocational education, disadvantaged, handicapped, work-study, exemplary programs and occupational guidance. This unit's responsibilities include the review of national research and related innovative programs, stimulation of cooperating educational agencies to initiate appropriate new programs, and development in planning new or expanded programs.

The manpower development and training unit is made up of the administrator and assistant administrators of teacher education, property control, individual referrals, skill centers and program development. Their responsibilities include liaison with the vocational education staff; cooperating with manpower agencies; operation of skill centers; preparation of manpower programs and recruitment of teachers; and the development, equipping and staffing of programs to meet specific manpower needs.

Conference on Research Utilization
Arizona Department of Vocational-Technical Education

The specific duties and responsibilities of individual staff members in most cases extend across more than one unit, achieving in this way a degree of coordination and cohesion sometimes lacking in public agencies. Each person's assignments are, of course, determined by the requirements of the state plan; and while the plan itself is prepared by them, it follows very detailed guidelines and federal regulations prepared by the U.S. Office of Education from federal statutes. The major responsibility of the entire Department, and its primary reason for existence, is to allocate federal and state funds appropriated each year according to provisions in the laws. In order to carry out this function, a variety of activities are necessary including program development, evaluation, and reporting. An extensive list of additional services to vocational teachers and administrators in the schools including curriculum development, research, and professional assistance of all kinds is inescapable. They are based on obvious need as well as provision in the laws.

These are all described in the state plan and widely publicized. At least one meeting of the State Board must be held each year to review the plan for school administrators and the public. Anyone who might disagree with any of its provisions may be heard. It is the policy of the Department in Arizona to hold local meetings throughout the state and to provide copies to all high schools, junior college districts, and universities. Other copies are made available on request. The result is an administrative system in vocational-technical education more closely related to the schools, to other state and local agencies, to business and industry, and to the public than has been possible in any other area of education or manpower training.

State Advisory Council

Arizona has two state advisory councils for vocational education, one established by state law and the other required under the federal legislation of 1968. The council authorized by state statutes provides that the Director of the State Department of Vocational Education shall be Chairman of the Council; federal law provides that the Governor shall designate the chairman. A council was appointed by the Governor of Arizona in the spring of 1969 which met federal requirements, but this council was subsequently dissolved in order to establish a common advisory body for several vocational and manpower agencies. The appointment of this group, designated as the Human Resources Advisory Council, was delayed until the spring of 1970. Professional staff as provided in the federal legislation of 1968 have been added.

Federal law is quite explicit regarding the membership of the Advisory Council. It must include:

(a) At least one person familiar with the vocational needs and problems of management and labor in the State and at least one person representing State industrial and economic development agencies;

(b) At least one person representative of community and junior colleges and other institutions of higher education, area vocational schools, technical institutes, and postsecondary or adult education agencies or institutions, which may provide programs of vocational or technical education and training;

(c) At least one person familiar with the administration of State and local vocational education programs, and at least one person having special knowledge, experience, or qualifications with respect to vocational education and who is not involved in the administration of State or local vocational education programs;

(d) At least one person familiar with programs of technical and vocational education, including programs in comprehensive secondary schools;

(e) At least one person representative of local educational agencies, and at least one person representative of school boards;

(f) At least one person representative of manpower and vocational education agencies in the State and the Comprehensive Area Manpower Planning System of the State;

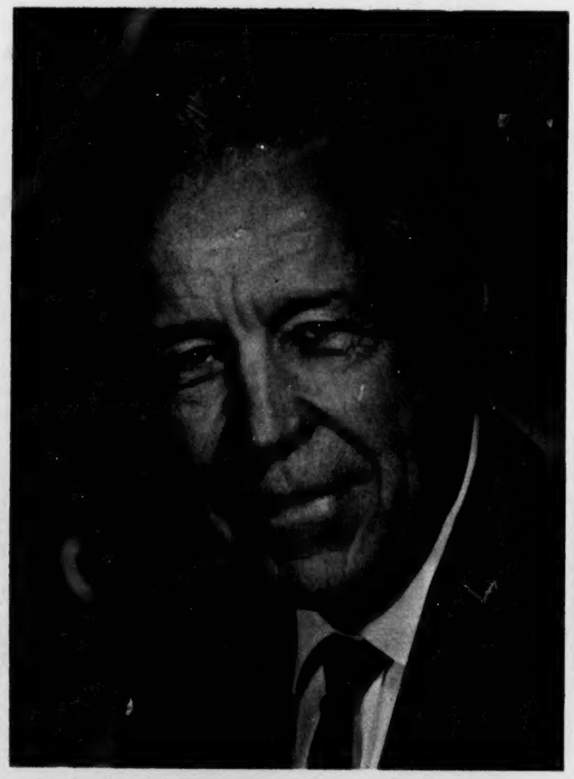
(g) At least one person representing school systems with large concentrations of academically, socially, economically, and culturally disadvantaged students;

(h) At least one person with special knowledge, experience, or qualifications, with respect to the special educational needs of physically or mentally handicapped persons; and

(i) Persons representative of the general public, of whom at least one shall be representative of and knowledgeable about the poor and disadvantaged, who are not qualified for membership under any of the preceding categories.

The Council's functions and responsibilities are to advise the State Board in its preparation of the state plan and on policy matters in the administration of the state plan. Its major responsibility is to evaluate vocational education programs, services and activities under the state plan, "and publish and distribute the results thereof." The Council is required to prepare an annual evaluation report and submit this to the U.S. Commissioner of Education through the State Board.

Federal law provides that state advisory councils, as well as a national advisory council, shall be independent of state and federal administrative agencies in order to provide the necessary balance of judgment and evaluation intended by their creation. Accordingly, they are given separate funds with which to employ staff and carry out their responsibilities. They are expected to serve as constructive critics



Mr. F. R. "Chick" Vihel
Executive Secretary, State Advisory Council for Vocational Education

of the way vocational education programs are administered and of the results achieved.

Cost and Finance

While the major objectives of vocational education are now focused on people rather than programs, the central controlling factor is money. The manner in which federal and state allocations are made largely determine the nature and direction of career education in schools. And in the end, whatever measure of success has been achieved must be related to the cost of achieving it. This then, becomes the heart of the state plan and of the State Department's administrative responsibilities.

Under the 1968 Amendments only three sets of restrictions (other than those dealing with administrative procedures) are placed on the use of federal funds for career education. The first of these is that the statewide combined expenditures of the state and local agencies for career education must at least match the federal grant. The second specifies that at least 15% of the state's basic grant be spent in each of: 1) post-high school programs and 2) programs designed for economically or socially disadvantaged persons; and that at least 10% of the basic grant be spent for programs designed for students with mental or physical handicaps. The final requirements is that federal funds must be used to supplement state and local expenditures -- that they not supplant them.

Cost of Instruction Per Child Per Recitation in 1917

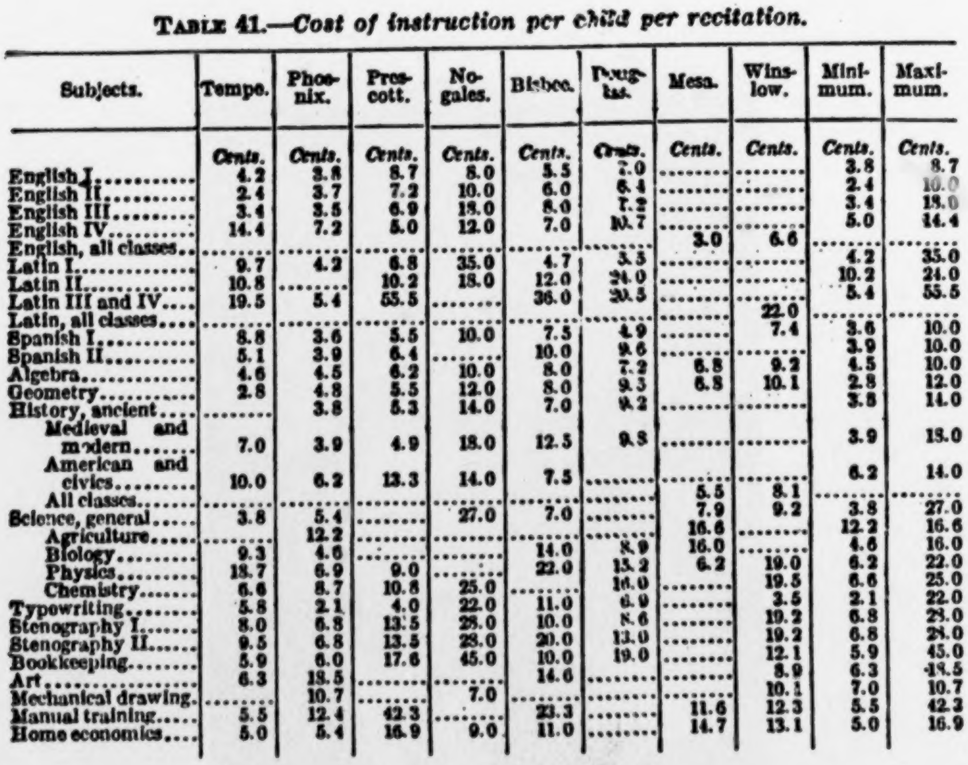


TABLE 41.—*Cost of instruction per child per recitation.*

Subjects.	Tempe.	Phoenix.	Prescott.	Nogales.	Bisbee.	Douglas.	Mesa.	Winslow.	Minimum.	Maximum.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
English I	4.2	3.8	8.7	8.0	5.5	7.0	......	......	3.8	8.7
English II	2.4	3.7	7.2	10.0	6.0	6.4	......	......	2.4	10.0
English III	3.4	3.5	6.9	18.0	8.0	7.2	......	......	3.4	18.0
English IV	14.4	7.2	5.0	12.0	7.0	10.7	......	......	5.0	14.4
English, all classes	......	......	......	......	......	......	3.0	6.6	......	......
Latin I	9.7	4.2	6.8	35.0	4.7	3.3	......	......	4.2	35.0
Latin II	10.8	......	10.2	18.0	12.0	24.0	......	......	10.2	24.0
Latin III and IV	19.5	5.4	55.5	......	36.0	20.5	......	......	5.4	55.5
Latin, all classes	......	......	......	......	......	......	......	22.0	......	......
Spanish I	8.8	3.6	5.5	10.0	7.5	4.9	......	7.4	3.6	10.0
Spanish II	5.1	3.9	6.4	......	10.0	9.6	......	......	3.9	10.0
Algebra	4.6	4.5	6.2	10.0	8.0	7.2	6.8	9.2	4.5	10.0
Geometry	2.8	4.8	5.5	12.0	8.0	9.3	6.8	10.1	2.8	12.0
History, ancient	......	3.8	5.3	14.0	7.0	9.2	......	......	3.8	14.0
Medieval and modern	7.0	3.9	4.9	18.0	12.5	9.8	......	......	3.9	18.0
American and civics	10.0	6.2	13.3	14.0	7.5	......	......	......	6.2	14.0
All classes	......	......	......	......	......	......	5.5	8.1	......	......
Science, general	3.8	5.4	......	27.0	7.0	......	7.9	9.2	3.8	27.0
Agriculture	......	12.2	......	......	......	......	16.6	......	12.2	16.6
Biology	9.3	4.6	......	......	14.0	8.9	16.0	......	4.6	16.0
Physics	18.7	6.9	9.0	......	22.0	15.2	6.2	19.0	6.2	22.0
Chemistry	6.6	8.7	10.8	25.0	......	16.0	......	19.5	6.6	25.0
Typewriting	5.8	2.1	4.0	22.0	11.0	6.9	......	3.5	2.1	22.0
Stenography I	8.0	6.8	13.5	28.0	10.0	8.6	......	19.2	6.8	28.0
Stenography II	9.5	6.8	13.5	28.0	20.0	13.0	......	19.2	6.8	28.0
Bookkeeping	5.9	6.0	17.6	45.0	10.0	19.0	......	12.1	5.9	45.0
Art	6.3	18.5	......	......	14.6	......	......	8.9	6.3	18.5
Mechanical drawing	......	10.7	......	7.0	......	......	......	10.1	7.0	10.7
Manual training	5.5	12.4	42.3	......	23.3	......	11.6	12.3	5.5	42.3
Home economics	5.0	5.4	16.9	9.0	11.0	......	14.7	13.1	5.0	16.9

Vocational Courses at Bottom of Table
Bureau of Education Bulletin, 1917, No. 44

The manner in which these funds are distributed has been changed in the past year from percentage reimbursements for itemized expenditures to grants based on specific proposals by the schools. The state budget, therefore, is a performance budget, and the schools receive their money to achieve stated objectives in terms of students to be trained in designated courses. Each educational agency desiring to receive such grants submits an application to the State Department which includes the following: 1) a detailed description of the proposed program or programs; 2) justification of the funding levels requested; 3) details indicating that the programs were designed after consideration of other educational and training resources available in the area: 4) information about how the proposed programs will aid those taking them in preparing for their careers; 5) a five-year plan indicating expected future needs of career education programs in the area; and 6) details on the ways the programs will be operated so as to allow them to achieve the goals identified earlier.

The State Department approves all programs that meet the requirements and carry out the objectives of the state plan, and when the total amount of combined state and federal funds for the year is known they are allocated to these programs according to a formula in the state plan. The formula takes into consideration present and future manpower needs and opportunities, the career education needs of various segments of the population (including those who are unemployed and those with special educational needs), the financial capability of local agencies to provide needed levels of career education programs, special situations which may impose greater cost burdens for a given program in one area than in other areas, and the tax effort of the area.

While this formula is fairly rigid, the state has sufficient flexibility to determine priorities for special situations. For example, programs serving the disadvantaged or handicapped will receive priority over other programs, especially if there are relatively large numbers of such persons to be served by the local agency. Likewise, economically depressed areas will receive funding on a preferred basis. No school district will be deprived of a grant simply because it cannot supply a portion of the funds needed to operate a given career education program.

The state plan currently provides that a local agency may apply its grant toward salaries, equipment, or both at the local agency's option. However, a strict accounting of all expenditures for approved programs must be made to the State Department at the end of the fiscal year. This is true even of local as well as state and federal funds, and here is the final detail in the state's program planning and budgeting system. In addition to providing detailed information about what is being accomplished in career education programs in the schools and insuring against misuse of funds, it enables the State Department to relate the cost of each program in each school to the results achieved.

It must be kept in mind, as has been pointed out earlier, that the changeover from traditional financing of career education based on program allocations to one based on performance objectives and results is much too difficult to be accomplished in a single year or even two or three years. It has required a whole series of changes by the State Department in procedures and organization simply to get ready to process vocational-technical education funds in this way. An entirely new system of enrollment, followup, and financial reporting has been made necessary, and this in itself requires several years to develop to the point of complete reliability. In the schools the problems are just as numerous and often more difficult to overcome. Present accounting systems in education are not designed to provide the kinds of information required for cost analysis by performance objectives and results in individual instructional programs. The volume and detail of fiscal data needed from each school to fully relate program results to their cost require computer facilities, and these are available only in the large school districts. In spite of the problems, however, and the time it takes to develop a completely operating program planning and budgeting system, this is what the entire vocational-technical education community in the State Department and in the schools is committed to do. Arizona is farther along in its efforts to do this than most of the other states.

State Supervisors
Arizona Department of Vocational Education

CHAPTER VI

RESEARCH AND CHANGE

> *The goal for vocational education in the early 70's is to at least double the secondary enrollments in occupational programs and to offer some occupational information and work experience to all secondary students, even those enrolled in college preparatory programs.*
>
> -- *Budget Justifications,*
> *The President's Budget, FY 1971*

Education as a profession is inherently conservative because it involves passing the knowledge and skills of one generation on to the next, and because teachers tend to teach as they were taught. Yet educators recognize that knowledge does change and skills become obsolete, so there is a professional commitment to change even when it is in apparent conflict with the way the daily routine of education is carried on. Unfortunately, whether because of pressure from this professional commitment, or to appease the often impatient demands of the public for modernization, or merely to glamorize the profession, educators have created a whole lexicon of supposedly new ways of teaching and new approaches to learning which are little more than window dressing or passing fads. Fundamental changes in education come exceedingly slow. But they do come; in fact they are constantly being explored, researched, tested and implemented. Witness the teaching of mathematics, science and foreign languages since World War II. Witness also the emergence of two year colleges as a dominant feature of American education during the same period.

The demands for change in American education by the end of the 1960's have become so shrill and so impatient - due to social frustrations both within and outside of the educational system - that a clear picture of what is actually being accomplished and what is most needed in the years ahead may be almost totally obscured for the general public and even for many educators. In the case of career education, there has been a tendency among some political groups to overlook substantial changes and progress made within Arizona and nationally as a result of the legislation of the early 1960's. Repeated demands for totally new - and largely unresearched and untested - systems of career training are being made to replace established programs which have been substantially redesigned in the past five years and which are well along in attacking the problems their critics have only recently discovered.

The actual picture of what would have to be accomplished through career education and training, both in the schools and through supplementary programs, was well established in Arizona in the 1962 report of the Governor's Committee on Vocational Education. It was reinforced and much of the detail regarding specific changes added by the report the next year of the President's Panel of Consultant's on Vocational Education, which led to the passage of the Vocational Education Act of 1963. Since that time much of the curricula, the methodology, and the organization of career education have started to change.

Directions of Change in Career Education

Nationally both the range and extent of change is already significant. A growing number of new and emerging occupations have been identified and training programs established. Curriculum changes have been extensive and often of a basic nature in courses and programs previously taught. Occupational needs and specific job requirements have been examined to eliminate gaps between theory and practice in each area of skill training and career education. Job clusters and families of occupations have become the basis for new combinations of training. New techniques and practices in career counseling have begun to emerge. Evaluation of career programs in the schools and their administration by state agencies has gained so much attention that "accountability" is becoming a significant concept in all education. New data systems have been designed and put into operation which make it possible not only to achieve the largely utilitarian objectives of most career education but to analyze in dept and with far greater confidence than was previously possible many of the basic assumptions underlying all education.

Within any single school or community -- and for any single state for that matter -- the impact of these changes has only begun to be felt. Much of the research upon which early progress has been based did not get underway until funds were provided for this purpose in the 1963 Act. Most of the research which may be expected to lead to substantial progress in the future -- and an unmistakable impact on education at every level and in every kind of institution from elementary schools to the universities -- is still only in the design and exploratory states. The directions this research would take, however, were well established by 1968.

They are encompassed in the five recommendations of the National Advisory Council upon which Congress based the Vocational Education Amendments of that year: (1) end the dichotomy between academic and vocational education; (2) develop attitudes, basic educational skills, and habits appropriate for the world of work; (3) introduce students to the world of work and provide motivation through prevocational orientation; (4) provide "meaningful career choices" in vocational education; and (5) build developmental, not terminal, vocational programs using a career ladder concept "based on a spiral curriculum."

In order to bring about these kinds of changes, the traditional patterns of both general education and vocational education are being affected. Constant efforts are being made to overcome the natural conservatism of teachers and administrators, and the success already evident in this respect is quite impressive. Two factors are primarily responsible for this; the growing urgency to bring career education into line with the demands of a rapidly changing technological society; and the need for education to become more relevant for large numbers of students, especially the disadvantaged and handicapped, who do not complete the four year college program toward which most education has been directed. These factors have also determined the priorities of research and change, especially at the national level.

Initially vocational research under the Act of 1963 was directed entirely by the U.S. Office of Education, but each state was encouraged to participate through both federal grants and the use of state and local funds. Research coordinating units were established under federal grants in most of the states to stimulate research activity and provide coordination both within the states and nationally. In the Amendments of 1968 Congress divided the federal research funds evenly between the U. S. Office of Education and State Boards for Vocational Education, and provided for the support of research coordinating units from the state's share of these funds. It was an arrangement intended to preserve the national network of communications and coordination established through RCU's, the U.S. Office, and the two National Centers while shifting some of the funds to strictly state and local projects.

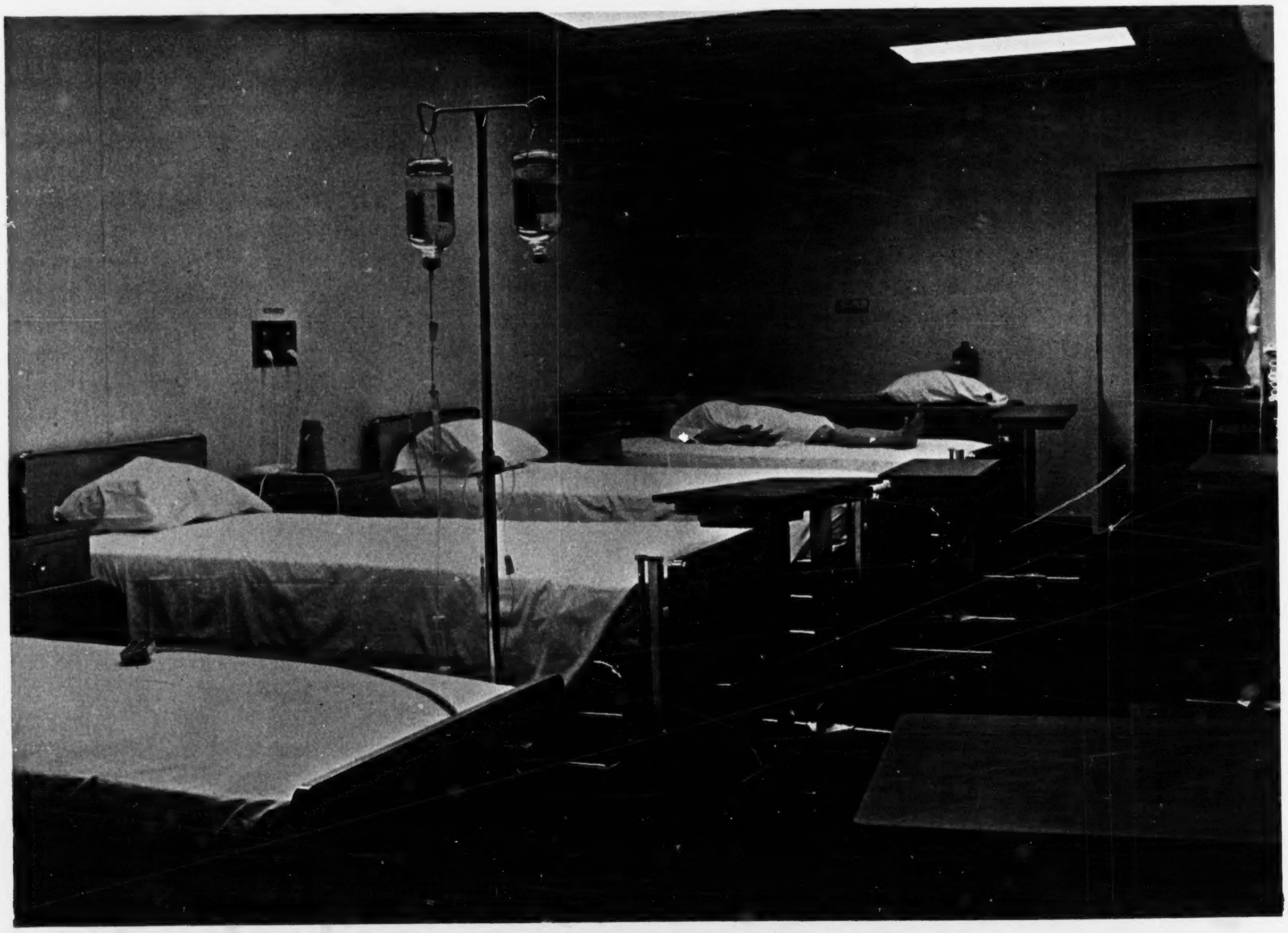
Each state has thus shared in the overall research effort and will continue to do so, developing its own particular programs where the needs of educators and the interests of researchers are most evident. The network of RCU's and ERIC -- the U. S. Office's Educational Resources Information Center -- enable them to pool the results. The Arizona RCU maintains a complete collection of ERIC microfiche in vocational education research and materials, which is used by educators all over the state both in the RCU library and through distribution to schools and other agencies.

Using ERIC Microfiche In the RCU Library

Major Research in Arizona

Health Occupations: Arizona, like most states, has contributed a variety of research projects and activities to the national effort and is implementating some of the results. In the area of health occupations, one of the initial series of studies in the United States was carried out in Arizona. All of the educational institutions, hospitals, the medical association, and health services agencies in the greater Phoenix area, with Norther Arizona University, the University of Arizona, the State Employment Service, and the State Department of Vocational Education, organized a joint effort in 1965 to develop a health services education center. Five research grants were obtained, two from the U.S. Office of Education, one from the State Department of Vocational Education, and one from the Educational Facilities Laboratory of the Ford Foundation.

The Phoenix Project was one of five written up in a U.S. Office publication, *New Directions in Vocational Education*, in 1967, and the national distribution of this account led to implementation of health occupations training centers in dozens of cities and influenced passage by Congress of the Allied Health Occupations Act of 1966. Development of a center in Phoenix encountered institutional difficulties, but the research carried out was used to initiate, expand and modify training programs in all of the state's junior colleges, several high school districts, and some of the hospitals. The Nation's first program to train LPN's to become RN's using the ladder concept was established at Maricopa Technical College.



Simulated Hospital Ward at Maricopa Technical College, Phoenix

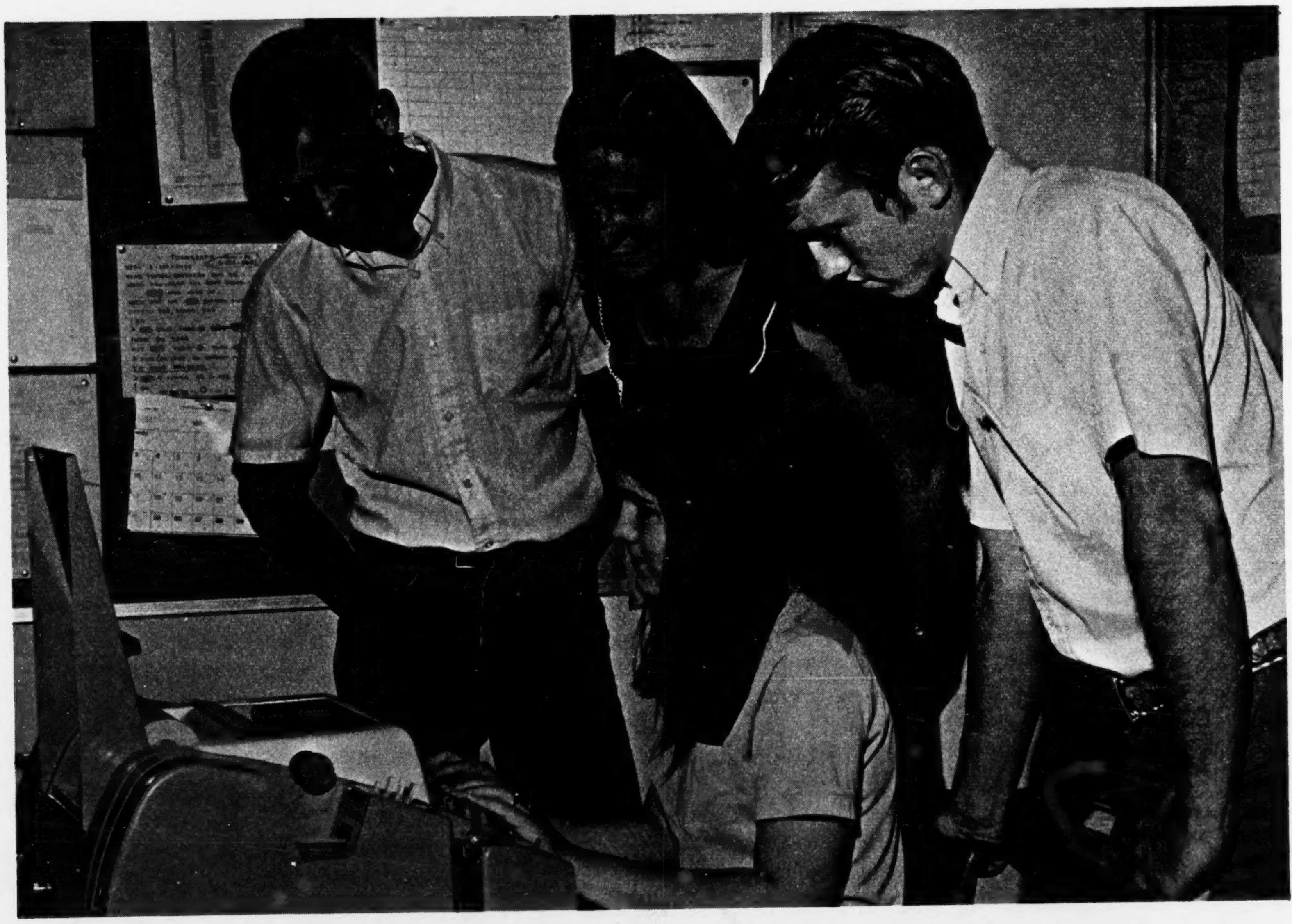
Engineering, Technology, and Skilled Industrial Crafts: In engineering technology several Arizona research projects have been conducted, including the first and only complete statewide study of industry for training and manpower development. In the latter project thirty-six occupations ranging from engineers to skilled craftsmen were examined in great detail. A 274 page report was published in 1966 which has gone through three printings and is being used by hundreds of educational institutions all over the United States. Requests for this report continue to come from every state in the nation and have been received from several foreign countries.

The Joint Engineers Council, which represents all of the national engineering associations, called the Arizona report "an excellent example of manpower planning." The American Vocational Association is currently preparing to feature this report in the Research Visibility section of AVA *Journal*.

Mesa Community College Technical Education Class

In Arizona the engineering technology research report has been used by all community colleges in expanding and modifying their programs. In addition, Northern Arizona University has carried out a penetrating followup of its industrial education and technical engineering graduates as recommended in the report for all institutions, and has used the results of this and the previous research to make extensive changes and additions in the University's programs. Both Northern Arizona University and Arizona State University have developed work experience programs in engineering and technology using this report as their principal source. The University of Arizona has designed and carried out further research in communications testing in engineering technology education recommended by and based on findings in this report. The Arizona Council of Engineering and Scientific Societies is sponsoring the first statewide Industry Education Conference in October, 1970, following a recommendation of this report and using the report as the source document for the Conference.

The Cochise Project: One of the nation's first comprehensive career education programs for junior high and high school students on a county-wide basis is being established through a combination of federal, state and local research funds in Cochise County. The original proposal was written by the RCU in 1966 working with the ten high school districts, the County Junior College, and the State Department of Vocational Education. It has been under development since 1968 following a concept of "unifying a total system of education around a career development theme," with its main objective "to provide an occupational education and career guidance program for an entire county in a sparsely populated rural area." The project is under the direction of the County Superintendent of Schools, with the Cochise County Administrators Association and the Project Advisory Board acting in an advisory capacity.



Computerized Instruction, Cochise County

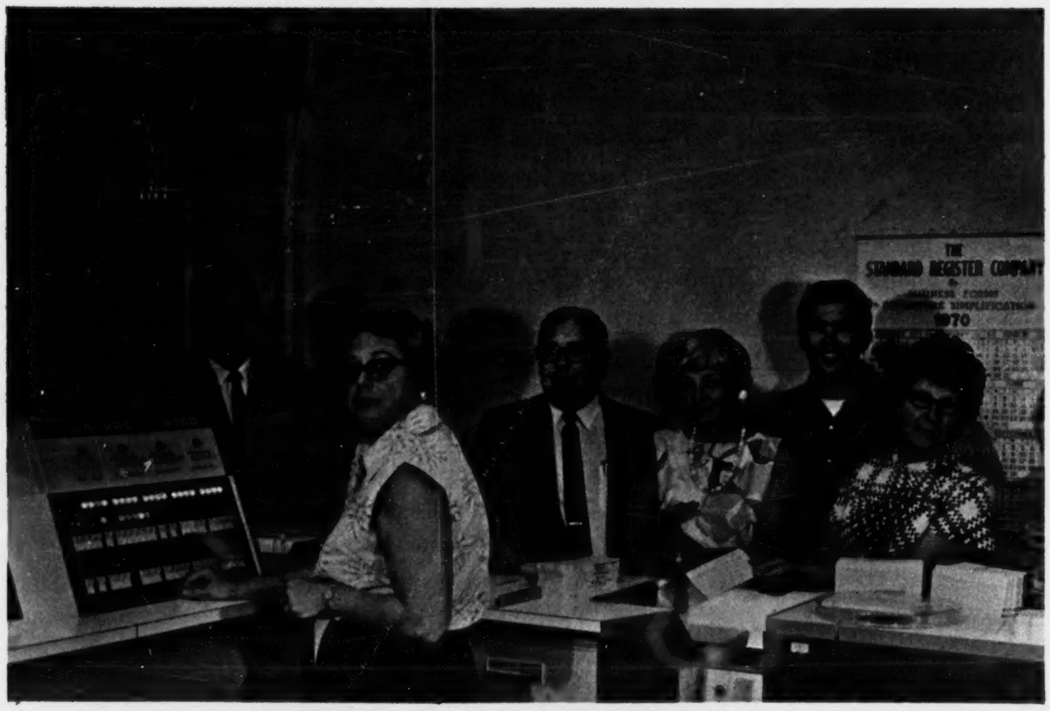
Prevocational Experimental Research: The most significant career education research project in Arizona and one of the most potentially far reaching in the nation is a longitudinal study in prevocational education in the elementary schools. The project's sponsors propose to establish a completely integrated curriculum combining general education and skill training for all students in grades one through eight. This curriculum will be used in place of the regular general education curriculum in one or more classrooms at each grade level in at least two school districts. One of the districts will be in a metropolitan disadvantaged area and the other in a metropolitan suburban area. An equal number of classrooms at each level in each school district using the regular curriculum will be used as control groups. An annual testing program will gather cumulative data measuring the effects of the experimental program at each level, with testing continued through high school and five years beyond. Effects will be measured on academic achievement, school interest and attendance, attitudes, communication, self-concept, selection of careers, career advancement, and vertical mobility in occupational levels of entry.

A steering committee was formed in February, 1969, consisting of the Dean and two faculty members from the College of Education at Northern Arizona University, the Dean and two faculty members from the University's School of Applied Science and Technology, the Assistant Director and two Supervisors in the State Department of Vocational Education, the Director of Elementary Education in the State Department of Public Instruction, and the Director of the Research Coordinating Unit. A professional staff has been employed since June 1969, supported by research funds administered by the Research Coordinating Unit. A $2.25 million grant proposal has been submitted to the U. S. Office of Education by Northern Arizona University to support the next five years of the project. School districts in Tucson and Phoenix have been tentatively selected for participation.

Research Dissemination: Arizona has developed a research dissemination system in vocational education using 13,311 reports and related materials in microfiche and hard copy, and 28,407 additional volumes identified in other collections available on loan. The entire 41,718 documents have been individually catalogued and 10,884 have been coded by subject and nature of the document, cross-indexed, and put on magnetic tape for computer search and retrieval. Approximately 3,000 additional books have been placed in the RCU library by the State Department of Vocational Education and are being catalogued for inclusion in the computer system.

Approximately 125 research reports in the RCU library have been given to experts in Arizona for critical review, and the results distributed to vocational educators throughout the State. During the past year an average of ten requests for search and retrieval services were received and processed each month. Additional materials have been sent to decision makers in the state when received in the RCU library based on their probable significance. Two complete syntheses of research materials in particular areas have been prepared by the RCU for distribution, one on co-op work experience programs in vocational education, and the other on cost accounting/cost effectiveness in vocational education. A proposal is being submitted to the U.S. Office in the near future to use the basic concepts of the Arizona RCU search and retrieval system and the complete ERIC thesauras and computer tapes to develop a more efficient two-level search and retrieval system available on tape or through remote control time sharing facilities to users nationwide which will print out highly specialized search requests in considerable depth and selectivity as well as general lists in breadth and comprehensiveness.

Research Data Development: In data systems the RCU has developed with the State Department of Vocational Education an enrollment input and processing system based on individual files of vocational-technical education students, and a followup system in gathering and processing data from former students, which have become national models used by many of the other states in developing their systems. A complete enrollment, achievement, cost and followup data system has been developed for adult basic education. A statewide equipment inventory control system has been developed and put into operation for the State Department of Vocational Education. The major requirements for a cost accounting/cost effectiveness data system in career education have been developed, and also the basic requirements for a career counseling data system. All systems are compatible and together involve annually more than 100,000 individual input documents and nearly fifty separate computer printouts. Arizona was the first -- and last year the only -- state in the nation from which the U.S. Office accepted a computer printout meeting the requirements of the federal student enrollment reporting form.

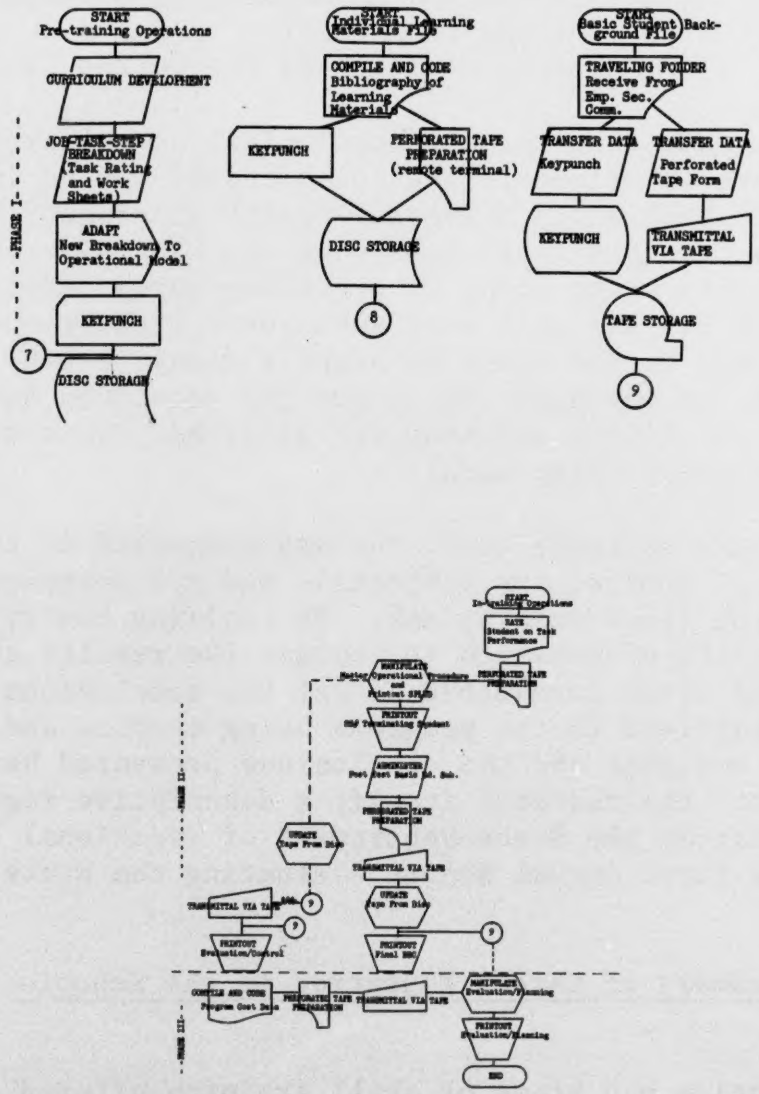


RCU Data Processing Staff

Skill Centers: A career training concept with extensive possibilities, especially for the handicapped and disadvantaged but also for regular students and adults, is the skill center. Arizona has several, and more are being developed. It is not a new concept, however some of the features being built into the skill centers in Arizona and elsewhere may have a significant impact on all career education.

Under a grant from the Four Corners Regional Commission several skill centers are being developed in the northern and central part of the state in which students may receive training in any of a number of occupations. The centers are sponsored by junior colleges and secondary school districts fro their own students and for the communities in which they are located. Students begin at their own level and advance at their own individual rates. Whatever they need in guidance, basic education, special instruction, and skill training is provided when and as needed according to their individual requirements.

In previously established skill centers this kind of an individualized program is managed by the staff using personal judgement, achievement tests, and cumulative paper files. In the Four Corners Project a computer is being used to increase the flexibility of the curriculum for each student and to provide a much greater range of assistance and achievement. A complete information system is being designed for computer monitoring and resources management.


START
Pre-training Operations
CURRICULUM DEVELOPMENT
JOB-TASK-STEP BREAKDOWN (Task Rating and Work Sheets)
ADAPT New Breakdown To Operational Model
KEYPUNCH
DISC STORAGE
7
--PHASE I--
START Individual Learning Materials File
COMPILE AND CODE Bibliography of Learning Materials
KEYPUNCH
PERFORATED TAPE PREPARATION (remote terminal)
DISC STORAGE
8
START Basic Student Background File
TRAVELING FOLDER Receive From Emp. Sec. Comm.
TRANSFER DATA Keypunch
TRANSFER DATA Perforated Tape Form
KEYPUNCH
TRANSMITTAL VIA TAPE
TAPE STORAGE
9
START
In-training Operations
RATE Student on Task Performance
PERFORATED TAPE PREPARATION
MANIPULATE Master/Operational Procedure and Printout SPLSD
PRINTOUT Sbf Terminating Student
ADMINISTER Post Test Basic Ed. Sub.
PERFORATED TAPE PREPARATION
TRANSMITTAL VIA TAPE
UPDATE Tape From Disc
PRINTOUT Final BEC
UPDATE Tape From Disc
TRANSMITTAL VIA TAPE
PRINTOUT Evaluation/Control
9
--PHASE II--
COMPILE AND CODE Program Cost Data
PERFORATED TAPE PREPARATION
TRANSMITTAL VIA TAPE
MANIPULATE Evaluation/Planning
PRINTOUT Evaluation/Planning
END
--PHASE III--

Flow Chart of Computerized Skill Center System

CHAPTER VII

THE BALANCE SHEET

> *The hard fact remains that schools have increased more in quantity than in the quality of their adaptation to changing social and economic conditions. A 'sound basic education' for a technological age has not been (and is not) 'always available and available for all' students in many school systems. Current social conditions, current attitudes of youth, and current shortages of skilled manpower required for economic growth prove this point.*
>
> *--What is the Responsibility of Business in*
> *Modernizing Education?*
> *Chamber of Commerce of the United States, 1969*

Is a sound basic education for a technological age always available and available for all students in Arizona? The ideal itself may be in a class with eliminating proverty or establishing universal health insurance, but it is no more to be questioned as an educational goal that teaching everyone to read. How well are the schools in this state doing in providing career education for everyone, including the 70% or 80% who will seek employment without the benefit of four years of college? How well is the state as a whole doing in providing skill training for those who need it at any age? Where are the strengths and where are the weaknesses in Arizona's vocational and manpower programs? What seems to be needed to improve the efforts already being made?

Some of the answers to these questions are suggested in the preceding chapters. The answers themselves, of course, are subjective and not everyone will agree that even the questions are the right ones to ask. Recognizing the right to disagree, it is still a responsibility of research to analyze the results and draw conclusions. It is also worthwhile and often invaluable to get the conclusions of others, both those who are directly involved in the programs being studied and critical observers of these programs. The analyses and the conclusions presented here, therefore, are drawn from three sources: the research itself; a descriptive report of what has been done in the past year by the State Department of Vocational Education; and the State Advisory Council's first Annual Report evaluating the State Department's efforts.

Summary of Career Education in the Schools

The amount, location and kinds of skill training offered to students in Arizona are easily idenfitied under the definitions of vocational-technical education administered by the State Department of Vocational Education. These are summarized in Tables 15 and 17 in Chapters II and Table 34 in Chapter III. Nearly 40,000 students in the secondary schools, 10,000 in post secondary programs, and

24,000 adults were enrolled during the past year. One hundred fifty-five different occupational programs were offered in 459 institutions throughout the state. In the secondary schools this represented slightly more than 30% of the entire enrollment, which compares favorably with a national average of 25.4%. Table 69 shows the vocational enrollment compared with total enrollment in each county. Significantly, Graham, Maricopa, Navajo, Pinal, and Yuma counties exceeded the statewide percentages of students taking vocational courses, with Pinal reaching just under 50%.

Table 69

Secondary Vocational Education Enrollment in Arizona
Compared with Total Enrollment by County and State, 1969-70

County	Total Secondary Enrollment	Total Secondary Voc. Ed. Enrollment	% of Voc. Ed. Enrollment
Apache	2,401	555	23.1
Cochise	5,167	2,063	30.9
Coconino	3,649	759	20.8
Gila	2,143	591	27.6
Graham	1,486	531	38.3
Greenlee	1,069	229	21.4
Maricopa	70,026	23,065	32.9
Mohave	1,816	689	37.9
Navajo	3,286	1,107	33.7
Pima	25,514	5,062	19.8
Pinal	5,273	2,625	49.8
Santa Cruz	1,167	172	14.7
Yavapai	2,831	679	24.0
Yuma	4,714	1,492	31.7
State Total	130,442	39,621	30.4

Data supplied by State Department of Public Instruction, and RCU Data Systems Division

These figures include home economics useful students, but do not include industrial arts or general business for which reliable enrollment data are not available. Many students use the skills they acquire in industrial arts and general business classes to seek employment and pursue their careers after they leave school. Estimates of the total number of students enrolled in some kind of a skill course during four years of high school in Arizona go as high as 80%.

In the State Department's descriptive report for 1969-70, the following accomplishments are listed:

Secondary Programs: In addition to the enrollment and program gains noted earlier, attention is directed to particularly significant results in a number of individual programs. Cooperative education has been extended to classes in home economics; and inter-disciplinary courses in hospitality education have been established in four schools involving English, mathematics, guidance and cafeteria personnel. A cooperative program in distributive education for potential dropouts was developed at Phoenix Union High School, and additional innovative programs in distributive education were established in Holbrook, Yuma, Tucson and Phoenix. Secretarial programs in Globe and Camp Verde were made bi-lingual; two new cooperative programs in office education serving chiefly disadvantaged students were established in the

Phoenix inner-city area, one at South Mountain and one at Phoenix Union; and a low achievers block program was continued at Sunnyslope High School in the Glendale District resulting in a decision to expand to another grade level.

Vocational agriculture has developed model programs of three kinds throughout the state: urban, represented by Westwood High School in Mesa; rural, usually irrigated, represented by Wilcox; and rural-Indian, represented by Monument Valley High School in Kayenta on the Navajo Reservation.

Post Secondary Programs: Vocational enrollments projected for the year at 18.8% of total community college enrollments actually reached 26.3% and are expected to reach 38% by 1975. The number of instructional programs, percentage of students placed in jobs, and the number of programs developed for new and emerging occupations all equalled or exceeded the State Plan for 1969-70.

Arrangements were made with four private cosmetology schools in Tucson to train students from Tucson District No. 1 under contract with public agencies as authorized in the Vocational Education Amendments of 1968, and thirteen students entered the program. This represents a cooperative effort involving the high schools, the State Department of Vocational Education, and the private schools.

An agricultural equipment technology program was initiated at Arizona Western College built on agriculture, trade and industrial, and technical instructional programs. A building materials-marketing management program was developed at Phoenix College in cooperation with the Arizona Building and Lumber Association. Additional new programs at Phoenix College include fashion merchandising, electromechanical technology and chemical technology. A manufacturing processes technology program was initiated at Mesa Community College.

Consumer and Homemaking: Two hundred fifty-four programs were conducted in ninety-nine schools related to consumer and homemaking. Five of these were full semester courses devoted totally to consumer education, and eighty-five were comprehensive home economics courses which included consumer education. Ninety-two homemaking classes for adults were offered, eighty-five in urban areas and seven in rural communities. Twenty-seven special programs were developed for students in depressed areas with cultural, social and economic handicaps, fourteen for adults, eleven for youth, and two for adults and youth together. In addition to these special programs, twenty-six more were conducted for youth in other depressed area schools on a formula funding basis for consumer and homemaking. One teacher's aide course was offered to train assistants in reaching extremely disadvantaged persons with consumer and homemaking education, and fifteen students completed the course.

Vocational Guidance and Counseling: One hundred three of the 112 senior high schools in Arizona, three of the seven elementary schools teaching high school subjects, and all of the junior high schools have organized guidance programs operated by certified counselors. An occupational and education information service for the use of students and counselors is an integral part of every guidance program in the state. However, much of the commercialized and free vocational information purchased or given to the schools is too inaccurate, or is biased. Most school counselors lack reliable information, experience, and even incentive in vocational counseling. Efforts to improve this situation during the past three years included completion of a released time project for fifteen counselors in the Phoenix Union High School District to spend one academic year each visiting and interviewing businesses and industry personnel; a series of manpower information and counseling clinics at strategic locations throughout the state bringing school counselors and Employment Service specialists together; seven school administrators and eighty-five elementary, junior and senior high school and community college counselors enrolled in a summer workshop on occupational information and career development psychology; and twenty-three Employment Service counselors with graduate degrees in counseling and guidance working with disadvantaged youth and school counselors.

Special Needs Programs: Four hundred seventy-six students in vocational programs received special in-school education. A pilot program was established with the Maricopa Accommodation School for twenty-nine trainees. A one week workshop was held for seventy-five teachers of handicapped students on problems of educating the mentally retarded and designing vocational programs. Fifty-one students in the Maricopa County Dentention Home were given auto service station training, and 134 youth received vocational training in eleven programs at the Ft. Grant Boy's Industrial School. Three hundred fifty-five disadvantaged youth and potential dropouts in Tucson were given a summer program in job orientation, attitudinal adjustment and vocational guidance. Vocational programs for potential dropouts and disadvantaged youth were equipped for next year at Nogales, Holbrook, Indian Oasis, and Coolidge. Five hundred ninety-three persons, largely disadvantaged, were trained in needletrades in rural communities, of whom 542 were employed. The multi-agency prison program in vocational training and rehabilitation was expanded.

Vocational Youth Organizations: A three-day leadership training conference was conducted for 450 members of FFA (Future Farmers of America). State FFA officers made 191 public appearances; seventeen members participated in a thirty minute color television program; four members appeared on a national television program; and an Arizona member received the Star Agricultural Businessman of America award at the national FFA convention.

A three-day leadership training service was held by the FHA (Future Homemakers of America). District meetings were held at five high schools throughout the state. A state meeting focused attention on drug abuse and career workshops, with twenty-five representatives from business, industry and education participating. An Arizona member was elected national FHA treasurer.

Two hundred members of VICA (Vocational Industrial Clubs of America) attended the State Association spring conference where competition activities were increased from seven to fifteen. Six student contestants and two delegates attended the national VICA leadership conference. A permanent advisory committee of six members was formed and met three times during the year. Fifty-five members participated in a leadership workshop for local club officers, and the number of state offices was increased from five to six.

Five regional meetings were conducted by DECA (Distributive Education Clubs of America), attended by over 600 students and chapter advisors throughout the state. Fifty-eight members of the Arizona DECA Speakers Bureau spoke to audiences totaling more than 10,000 people, and this program is being duplicated on a national scale. Eight hundred ninety-six persons took part in the DECA state leadership council, including 124 businessmen working with the students. Thirty-eight Arizona members attended the national DECA leadership conference, and two of them received National Scholarship Loan awards. The state chapter awarded five scholarships. The first annual DECA Western Regional Leadership Conference was held in Arizona attended by over 100 students from eight states.

Additional preparatory efforts were carried out during the year to organize Arizona Chapters of OEA (Office Education Association) and FBLA (Future Business Leaders of America). A planning meeting has been scheduled for the organization of an OEA chapter following a survey of 18,000 students and teachers.

Cooperative Vocational Education Programs: Fourteen new secondary and four new post-secondary programs were started, making a total of ninety-nine programs with an enrollment of 2,431 student trainees. Over half of the new programs were located in areas showing high youth unemployment and school dropouts. Two multi-occupational extension courses were conducted for thirty vocational teachers, one by ASU and the other by the U of A. A one-week workshop attended by fifty people was held at ASU for new Co-op Coordinators and a selected group of administrators. Subject matter fields included co-op programs, office education, cost accounting and cost efficiency, vocational agriculture, pre-vocational education, engineering technology, and industrial education.

Research: Nine new projects were funded during the year and sixteen altogether were completed. Subject matter fields included co-op programs, office education, cost accounting and cost efficiency, vocational agriculture, pre-vocational education, engineering technology, and industrial education. Vocational research library holdings have increased to 41,718. Eight thousand materials were cross-indexed, coded, and key punched into a computer search and retrieval system, bringing the total available for automatic search to 10,884. One hundred twenty computer-assisted search and retrievals of vocational research materials were made in ERIC and the RCU library. Twenty-three professional reviews were made of current research by specialists in the state and distributed in six issues of the RCU Newsletter to a mailing list of 2,296 educators and administrators. Three statewide research conferences were held, one for the Department of Vocational Education staff personnel, one for vocational teacher educators, and one for junior college presidents and occupational deans. Individual student enrollments were processed for 39,065 students in secondary, post-secondary and adult vocational education; and class enrollments were processed for 49,878 students in home economics useful and adult education. Six thousand five hundred twenty-five former students were followed up and data from 4,044 received and processed. Equipment data from 100 schools totaling 31,000 items were inventoried and prepared for computer storage and updating. The major requirements for a cost accounting/cost effectiveness data system were developed, and the basic requirements for a career counseling data sytstem were explored.

Exemplary Programs: Four proposals were developed and approved for funding which will involve twelve institutions and thirty-five programs designed to create a bridge between school and earning a living. These include co-op vocational education classes, integrating vocational and academic classes, screening processes, guidance services, teacher training, curriculum development, and pre-vocational preparation involving more than 300 students who are still in school or have just left school. Approximately twenty students will be in non-profit private schools and the BIA Indian School at Many Farms. Nine programs in the hospitality area in nine northern Arizona schools will be established for the purpose of familiarizing students with the world of work.

Work Study Programs: Twenty-one programs were developed and approved for funding involving forty schools and 130 students. Thirty-four of the schools are secondary and six post-secondary. Eighteen of them are rural and twenty-two urban.

Summary of Career Education and Manpower Training

There are various ways of looking at the total picture of skill training in the state. Actual numbers of persons being trained during the past year are shown for each county by kind of program and occupational service in Table 70. State totals are shown in Table 71 with percentages by occupational service and by kind of program. Trade and industry accounts for 29.4% of all the training in the state, followed by office occupations 18.6%, distributive education 15.2%, and technical

12.2%. Agriculture, health, and home economics gainful ranged from 3% to 5%. Tables 70, 71, 72, 73, and 74 do not include home economics useful enrollments in vocational education. They were included in Table 70 because they represent a recognized area of career preparation in the schools, that of homemaker. They are not included in the other tables because these are limited to skill training for employment.

In terms of administrative responsibility, the State Department of Vocational Education accounts for two-third of all of the training in the state -- 66.9% including secondary 17.8%, post-secondary 11.3%, special needs 4.2%, adult 29.5% and MDTA 4.4%. Private schools train 13.2% of the total, and 12.6% are trained in special federally supported programs for the disadvantaged. Bureau of Indian Affairs programs provide 4.6% of the state's skill training, and apprenticeship programs 2.7%.

The maps in Tables 72 and 74 show the distribution of training by program and by occupational service. Secondary programs are offered in all fourteen counties and enrollments roughly follow the state's population distribution. Post-secondary enrollments are distributed largely according to the location of community colleges. Adult training is concentrated in metropolitan areas and to some extent according to the location of community colleges and other institutions available. The smaller programs are necessarily uneven throughout the state, but with a tendency to concentrate in Phoenix and Tucson. The distribution of training by occupational services reflects economic patterns both in local employment opportunities and in the ability of local institutions to support training programs; and although this is to be expected it raises serious questions about equality of opportunity in Arizona's rural counties.

Table 73 is a complete summary by county and state of all training in each occupation. Also shown on this table are the current employment estimates for each occupation and the projected need for additional employees during the next five years in each occupation. It is immediately apparent that wide discrepancies exist between numbers being trained and projected employment needs in many occupations. Apparel and accessories under distributive education, for example, shows a projected five year need of 22,000 and only 485 being trained. Management and mid-management combined, on the other hand, show a projected need of 950 and 4,637 being trained. Similarly, there is a projected need of 2,200 nurse's aides and only 181 being trained while in production agriculture the projected need is 400 and 1,154 are being trained.

The trouble may be in the reliability of employment need projections rather than in overtraining or undertraining, especially when such projections are made from a census baseline of ten years ago. The validity of any comparison of training effort and employment market requirements may also be questioned in a majority of the occupations because of disagreements over definitions. Considerable progress has been made in bringing educators and labor economists together on occupational definitions, but serious discrepancies still exist. Perhaps the best example of this is the vigorous disagreement between vocational agriculture teachers and the Employment Service over what is meant by production agriculture.

As skill training becomes increasingly multi-occupational, through job cluster programs and career combinations (i.e. agri-business, medical electronics), it is doubtful if simple comparisons of this kind can be made at all on a fixed matching basis of trainee to job. The techniques of relating skill training to the employment market undoubtedly will have to become more flexible and sophisticated, matching for example combinations of trainees to combinations of employment market needs. Table 73 should probably be viewed with this concept in mind. Thus a projected surplus of 200 agricultural mechanics might be grouped with

Table 70

Summary of Career Education and Manpower Training Public and Private in Arizona by Service
July 1, 1969 - June 30, 1970
Non-Duplicated Enrollment Totals

County	Program	Agri.	Dist. Ed.	Health	Home Ec. (Gainful only)	Office	Tech.	Trade & Ind.	Unident. Occup.	Total
Apache	Secondary	-	-	-	-	84	-	20	1	105
	Post-Secondary	-	-	-	-	-	-	-	-	-
	Adult	-	-	-	-	-	-	1	-	1
	Spec. Needs	63	-	-	-	80	-	176	1	320
	MDTA	22	-	-	-	66	-	339	633	1,060
	BIA	17	22	-	200	296	92	460	151	1,238
	Spec. Disadv.	-	-	-	-	-	-	-	-	-
	Apprenticeship	-	-	-	-	-	-	-	-	-
	Private Schools	-	-	-	-	-	-	-	-	-
Cochise	Secondary	337	148	-	49	299	-	246	-	1,079
	Post-Secondary	-	72	59	-	223	150	69	-	573
	Adult	33	2	-	-	46	60	72	1	214
	Spec. Needs	2	7	11	16	10	-	94	-	140
	MDTA	27	-	-	-	22	-	5	-	54
	BIA	-	-	-	-	-	-	-	-	-
	Spec. Disadv.	-	-	-	-	1	-	-	2	3
	Apprenticeship	-	-	-	-	-	-	50	-	50
	Private Schools	-	-	-	-	-	-	36	-	36
Coconino	Secondary	-	68	26	-	184	-	100	-	378
	Post-Secondary	-	-	-	-	-	-	-	-	-
	Adult	-	979	-	22	69	-	-	1	1,071
	Spec. Needs	-	2	-	-	69	-	8	-	79
	MDTA	-	-	-	-	25	-	1	-	26
	BIA	-	-	-	-	54	-	61	-	115
	Spec. Disadv.	-	-	-	-	-	-	-	-	-
	Apprenticeship	-	-	-	-	-	-	15	-	15
	Private Schools	-	-	-	-	-	23	45	-	68
Gila	Secondary	-	54	-	-	70	-	109	-	233
	Post-Secondary	-	-	-	-	-	-	-	-	-
	Adult	-	-	-	-	-	-	44	1	45
	Spec. Needs	-	-	-	-	-	-	-	-	-
	MDTA	-	-	-	-	-	-	33	-	33
	BIA	3	-	-	-	-	-	10	-	13
	Spec. Disadv.	-	-	-	-	-	-	2	-	2
	Apprenticeship	-	-	-	-	-	-	126	-	126
	Private Schools	-	-	-	-	-	-	23	-	23

Table 70 (cont'd)

County	Program	Agri.	Dist. Ed.	Health	Home Ec. (Gainful only)	Office	Tech.	Trade & Ind.	Unident. Occup.	Total
Graham	Secondary	48	100	-	-	12	-	45	-	205
	Post-Secondary	-	50	-	-	65	261	1	-	377
	Adult	14	4	-	-	12	51	-	-	140
	Spec. Needs	63	16	-	3	29	-	137	59	248
	MDTA	-	-	-	-	-	-	-	-	-
	BIA	-	-	-	-	-	-	38	-	38
	Spec. Disadv.	-	-	-	-	-	-	2	-	2
	Apprenticeship	-	-	-	-	-	-	-	-	-
	Private Schools	-	-	-	-	-	-	-	-	-
Greenlee	Secondary	86	-	-	-	-	-	-	-	86
	Post-Secondary	-	-	-	-	-	-	-	-	-
	Adult	-	-	-	-	-	-	-	-	-
	Spec. Needs	-	-	-	-	-	-	-	-	-
	MDTA	-	-	-	-	-	-	-	-	-
	BIA	-	-	-	-	-	-	11	-	11
	Spec. Disadv.	-	-	-	-	1	-	2	-	3
	Apprenticeship	-	-	-	-	-	-	30	-	30
	Private Schools	-	-	-	-	-	-	-	-	-
Maricopa	Secondary	1,064	1,165	41	61	3,607	-	1,509	9	7,456
	Post-Secondary	221	519	833	212	1,583	2,168	1,202	-	6,738
	Adult	34	4,069	330	189	2,425	3,411	5,842	8	16,308
	Spec. Needs	4	191	35	222	206	-	304	8	970
	MDTA	23	93	132	-	273	106	684	561	1,872
	BIA	31	42	170	63	420	46	807	-	1,579
	Spec. Disadv.	40	40	366	347	342	100	542	288	2,065
	Apprenticeship	-	-	-	-	-	-	1,702	-	1,702
	Private Schools	-	1,200	1,041	-	650	1,779	3,636	-	8,306
Mohave	Secondary	-	21	-	-	144	-	31	-	196
	Post-Secondary	-	-	-	-	-	-	-	-	-
	Adult	-	-	-	-	-	-	-	1	1
	Spec. Needs	-	-	-	-	-	-	-	-	-
	MDTA	-	-	-	-	-	-	-	-	-
	BIA	-	-	-	-	-	-	-	-	-
	Spec. Disadv.	-	-	-	-	-	-	-	-	-
	Apprenticeship	-	-	-	-	-	-	5	-	5
	Private Schools	-	-	-	-	-	-	-	-	-

Table 70 (cont'd)

County	Program	Agri.	Dist. Ed.	Health	Home Ec. (Gainful only)	Office	Tech.	Trade & Ind.	Unident. Occup.	Total
Navajo	Secondary	93	139	-	-	138	-	64	-	434
	Post-Secondary	-	-	-	-	-	-	-	-	-
	Adult	18	-	-	-	56	-	-	1	75
	Spec. Needs	104	-	-	-	42	-	-	-	146
	MDTA	-	-	-	-	-	-	2	-	2
	BIA	31	17	3	155	225	-	194	-	625
	Spec. Disadv.	-	-	-	-	-	-	-	-	-
	Apprenticeship	-	-	-	-	-	-	-	-	-
	Private Schools	-	-	-	-	-	-	-	-	-
Pima	Secondary	183	581	39	128	843	-	420	1	2,195
	Post-Secondary	-	-	156	-	8	-	4	-	168
	Adult	24	2,115	399	2	643	188	1,241	2	4,614
	Spec. Needs	40	98	124	169	477	6	329	1	1,244
	MDTA	-	-	53	-	26	-	135	-	214
	BIA	-	-	1	-	60	-	18	-	79
	Spec. Disadv.	7	-	87	-	103	-	13	1	211
	Apprenticeship	-	-	-	-	-	-	248	-	248
	Private Schools	-	-	22	500	-	325	1,466	-	2,313
Pinal	Secondary	362	2	-	-	317	-	95	4	780
	Post-Secondary	24	52	12	-	90	186	-	-	364
	Adult	5	9	14	-	50	311	225	1	615
	Spec. Needs	1	-	-	-	22	50	-	-	73
	MDTA	-	-	1	-	-	-	-	-	1
	BIA	-	-	-	-	-	-	21	-	21
	Spec. Disadv.	-	-	-	-	-	-	-	516	516
	Apprenticeship	-	-	-	-	-	-	15	-	15
	Private Schools	-	-	-	-	-	-	-	-	-
Santa Cruz	Secondary	-	53	-	-	96	-	-	-	149
	Post-Secondary	-	-	-	-	-	-	-	-	-
	Adult	-	-	-	-	-	-	-	-	-
	Spec. Needs	-	6	-	-	-	-	18	-	24
	MDTA	-	-	-	-	-	-	-	-	-
	BIA	-	-	-	-	-	-	-	-	-
	Spec. Disadv.	18	-	1	-	-	-	-	-	19
	Apprenticeship	-	-	-	-	-	-	-	-	-
	Private Schools	-	-	-	-	-	-	-	-	-

Table 70 (cont'd)

County	Program	Agri.	Dist. Ed.	Health	Home Ec. (Gainful only)	Office	Tech.	Trade & Ind.	Unident. Occup.	Total
Yavapai	Secondary	124	77	-	-	105	-	52	-	358
	Post-Secondary	-	12	16	-	116	171	2	-	317
	Adult	1	42	-	-	127	201	1	3	375
	Spec. Needs	11	-	2	-	7	-	63	1	84
	MDTA	-	-	20	-	-	-	-	-	20
	BIA	-	-	-	-	-	-	-	-	
	Spec. Disadv.	-	-	-	-	-	-	-	-	-
	Apprenticeship	-	-	-	-	-	-	-	-	-
	Private Schools	-	-	-	-	-	-	-	-	-
Yuma	Secondary	303	203	13	-	56	-	225	6	806
	Post-Secondary	67	42	56	54	59	311	98	1	688
	Adult	42	16	41	23	87	121	212	-	542
	Spec. Needs	-	2	15	1	2	1	94	-	115
	MDTA	30	-	-	-	22	-	-	-	52
	BIA	-	1	-	-	-	-	2	-	3
	Spec. Disadv.	-	-	-	-	-	-	-	2	2
	Apprenticeship	-	-	-	-	-	-	-	-	-
	Private Schools	-	-	-	-	-	-	-	-	-
Unident. Counties	Secondary	-	-	-	-	-	-	-	-	-
	Post-Secondary	-	-	-	-	-	-	-	-	-
	Adult	-	-	-	-	-	-	-	-	-
	MDTA	-	-	-	-	-	-	-	-	-
	BIA	-	-	-	-	-	-	-	-	-
	Spec. Disadv.	-	-	-	-	-	-	-	7,443	7,443
	Apprenticeship	-	-	-	-	-	-	-	-	-
	Private Schools	-	-	-	-	-	-	-	-	-
	Totals	3,620	12,331	4,119	2,416	15,144	10,118	23,932	9,708	81,388

Table 71

Summary of Statewide Career Education & Manpower Training Public & Private in Arizona
Showing Percentages
July 1, 1969 - June 30, 1970

Service	Sec.	Post-Sec.	Spec. Needs	Adult	MDTA	BIA	Spec. Disadv.	Appr.	Priv.	Total	%
Agri.	2,600	312	288	171	102	82	65	0	0	3,620	4.4
D.E.	2,611	747	322	7,236	93	82	40	0	1,200	12,331	15.2
Health	119	1,132	187	784	206	174	454	0	1,063	4,119	5.1
Home Ec. (Gainful)	238	266	411	236	0	418	347	0	500	2,416	3.0
Office	5,955	2,144	944	3,515	434	1,056	446	0	650	15,144	18.6
Tech.	0	3,247	57	4,343	106	138	100	0	2,127	10,118	12.4
T. & I.	2,916	1,376	1,223	7,638	1,199	1,622	561	2,191	5,206	23,932	29.4
Unident. Occup.	21	1	11	78	1,194	151	8,252	0	0	9,708	11.9
Totals	14,460	9,225	3,443	24,001	3,334	3,723	10,265	2,191	10,746	81,388	
Percentages	17.8	11.3	4.2	29.5	4.1	4.6	12.6	2.7	13.2		100%

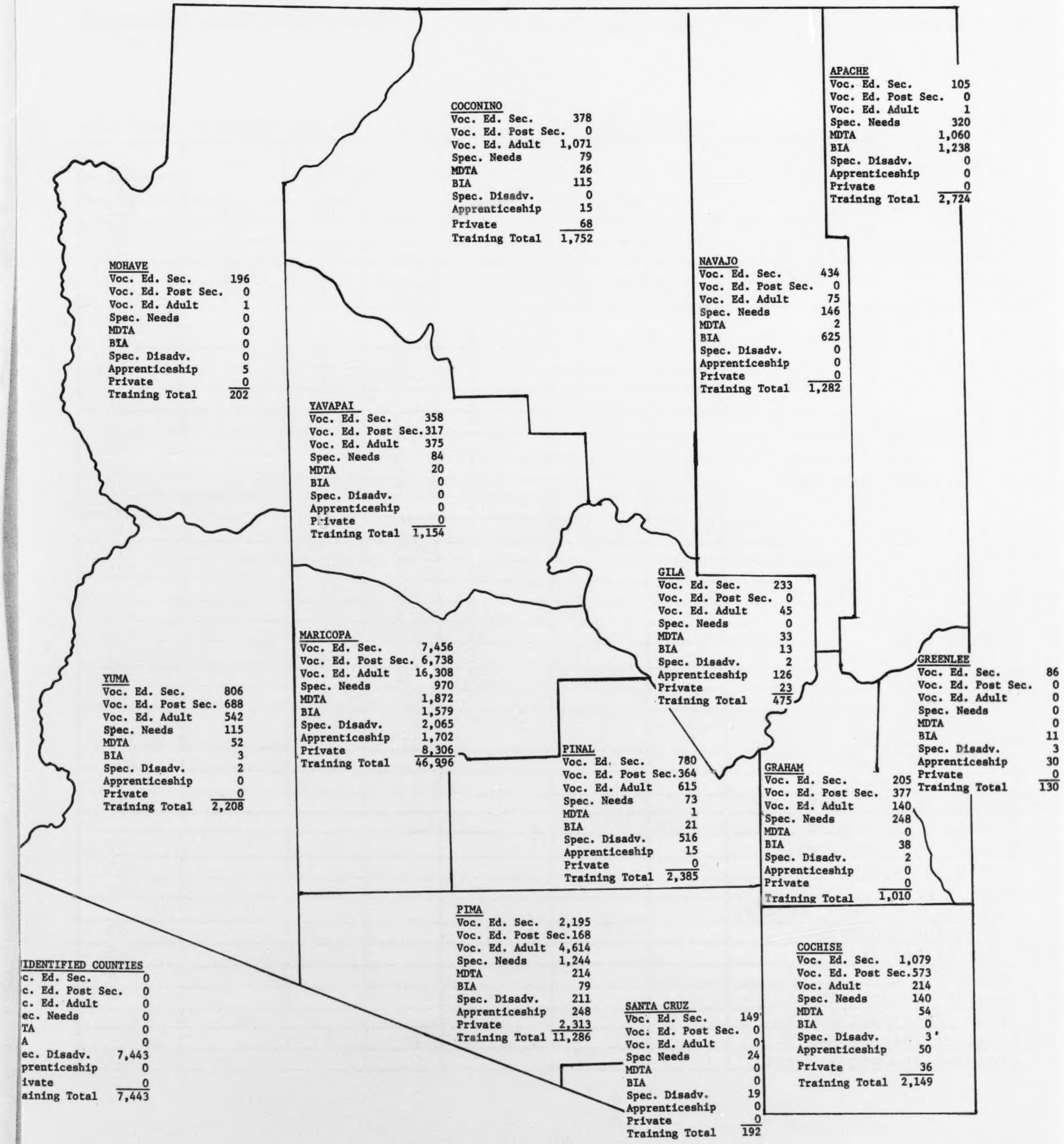
RCU Library of Vocational-Technical Books, Microfiche and Periodicals

the need for 1,300 automobile mechanics; and at the same time a combined enrollment of 2,353 trainees in these two programs should recognize that a certain number of them will go into business, management, and other mechanically oriented careers. The automotive and petroleum field alone in distributive education shows a projected need in Table 73 of 1,350 and only 94 being trained.

It is doubtful if, under these circumstances, educators can yet do very much in coordinating training with the employment market except in a general way. They

Table 72

Career Education and Manpower Training, Public and Private, by Counties
July 1, 1969 - June 30, 1970



MOHAVE	
Voc. Ed. Sec.	196
Voc. Ed. Post Sec.	0
Voc. Ed. Adult	1
Spec. Needs	0
MDTA	0
BIA	0
Spec. Disadv.	0
Apprenticeship	5
Private	0
Training Total	202

COCONINO	
Voc. Ed. Sec.	378
Voc. Ed. Post Sec.	0
Voc. Ed. Adult	1,071
Spec. Needs	79
MDTA	26
BIA	115
Spec. Disadv.	0
Apprenticeship	15
Private	68
Training Total	1,752

APACHE	
Voc. Ed. Sec.	105
Voc. Ed. Post Sec.	0
Voc. Ed. Adult	1
Spec. Needs	320
MDTA	1,060
BIA	1,238
Spec. Disadv.	0
Apprenticeship	0
Private	0
Training Total	2,724

NAVAJO	
Voc. Ed. Sec.	434
Voc. Ed. Post Sec.	0
Voc. Ed. Adult	75
Spec. Needs	146
MDTA	2
BIA	625
Spec. Disadv.	0
Apprenticeship	0
Private	0
Training Total	1,282

YAVAPAI	
Voc. Ed. Sec.	358
Voc. Ed. Post Sec.	317
Voc. Ed. Adult	375
Spec. Needs	84
MDTA	20
BIA	0
Spec. Disadv.	0
Apprenticeship	0
Private	0
Training Total	1,154

GILA	
Voc. Ed. Sec.	233
Voc. Ed. Post Sec.	0
Voc. Ed. Adult	45
Spec. Needs	0
MDTA	33
BIA	13
Spec. Disadv.	2
Apprenticeship	126
Private	23
Training Total	475

MARICOPA	
Voc. Ed. Sec.	7,456
Voc. Ed. Post Sec.	6,738
Voc. Ed. Adult	16,308
Spec. Needs	970
MDTA	1,872
BIA	1,579
Spec. Disadv.	2,065
Apprenticeship	1,702
Private	8,306
Training Total	46,996

YUMA	
Voc. Ed. Sec.	806
Voc. Ed. Post Sec.	688
Voc. Ed. Adult	542
Spec. Needs	115
MDTA	52
BIA	3
Spec. Disadv.	2
Apprenticeship	0
Private	0
Training Total	2,208

GREENLEE	
Voc. Ed. Sec.	86
Voc. Ed. Post Sec.	0
Voc. Ed. Adult	0
Spec. Needs	0
MDTA	0
BIA	11
Spec. Disadv.	3
Apprenticeship	30
Private	0
Training Total	130

PINAL	
Voc. Ed. Sec.	780
Voc. Ed. Post Sec.	364
Voc. Ed. Adult	615
Spec. Needs	73
MDTA	1
BIA	21
Spec. Disadv.	516
Apprenticeship	15
Private	0
Training Total	2,385

GRAHAM	
Voc. Ed. Sec.	205
Voc. Ed. Post Sec.	377
Voc. Ed. Adult	140
Spec. Needs	248
MDTA	0
BIA	38
Spec. Disadv.	2
Apprenticeship	0
Private	0
Training Total	1,010

PIMA	
Voc. Ed. Sec.	2,195
Voc. Ed. Post Sec.	168
Voc. Ed. Adult	4,614
Spec. Needs	1,244
MDTA	214
BIA	79
Spec. Disadv.	211
Apprenticeship	248
Private	2,313
Training Total	11,286

IDENTIFIED COUNTIES	
c. Ed. Sec.	0
c. Ed. Post Sec.	0
c. Ed. Adult	0
ec. Needs	0
TA	0
A	0
ec. Disadv.	7,443
prenticeship	0
ivate	0
aining Total	7,443

SANTA CRUZ	
Voc. Ed. Sec.	149
Voc. Ed. Post Sec.	0
Voc. Ed. Adult	0
Spec Needs	24
MDTA	0
BIA	0
Spec. Disadv.	19
Apprenticeship	0
Private	0
Training Total	192

COCHISE	
Voc. Ed. Sec.	1,079
Voc. Ed. Post Sec.	573
Voc. Adult	214
Spec. Needs	140
MDTA	54
BIA	0
Spec. Disadv.	3
Apprenticeship	50
Private	36
Training Total	2,149

Table 73

SUMMARY OF CAREER EDUCATION AND MANPOWER TRAINING, JULY 1, 1969 -

UNDUPLICATED TOTAL ENROLLMENT

	OCCUPATIONS	APACHE	COCHISE	COCONINO	GILA	GRAHAM	GREENLEE	MARICOPA
	AGRICULTURE							
1.	Agricultural Production		113			15	24	583
2.	Agricultural Supplies		6				3	83
3.	Agricultural Mechanics		148		2	10	13	222
4.	Agricultural Products		10				3	80
5	Ornamental Horticulture		12			14	6	43
6	Agricultural Resources		26			4	5	101
7	Forestry	22	41		1	3	12	128
	DISTRIBUTIVE							
8	Advertising Services		3	1	3			348
9	Apparel & Accessories		1	2	5	9		263
10	Automotive & Petroleum		1	5	2	6		40
11	Finance & Credit		3	1	3	4		438
12	Food Distribution		1	2	7	3		28
13	Food Services		6		1			50
14	Foreign Trade			3	3			11
15	General Merchandising		13	7	4	17		540
16	Home Furnishings			4		1		34
17	Hotel & Lodging	17	3	1	2			54
18	Insurance							214
19	Management		16	920	1	23		2,221
20	Marketing-General		63	3	4	26		372
21	Mid-Management		33	6	5	29		412
22	Real Estate			42	3			846
23	Retailing (Gen/Misc)	22	17	1	3	26		582
24	Transportation		15	2	1	1		69
25	Wholesaling							18
	HEALTH							
26	Medical Service							1,709
27	Dental Assistant		1					100
28	Dental Hygienist							42
29	Dental Lab. Technician							24
30	Histology Technician							
31	Medical Lab. Assistant							52
32	Nurses AA Degree							345
33	Nurse's Aid			26				130
34	Hospital Food Serv. Superv.							
35	Inhalation Therapist							23
36	X-Ray Technician							26
37	Optician							4
38	Surgical Technician							
39	Occup. Therapist Ass't.							
40	Physical Therapy Ass't.							
41	Licensed Practical Nurse		57					338

PUBLIC AND PRIVATE, RELATED TO EMPLOYMENT IN ARIZONA
JUNE 30, 1970

IN ALL PROGRAMS BY COUNTIES

MOHAVE	NAVAJO	PIMA	PINAL	SANTA CRUZ	YAVAPAI	YUMA	UNIDENTIFIED COUNTIES	STATE-WIDE TOTAL	CURRENT EMPLOY-MENT*	TOTAL NEEDED 1971-75*	
	34	60	110		45	170		1,154	13,900	400	1
		1	11		5	5		114	2,000	575	2
	49	14	94		29	78		659	11,500	-200	3
		5	18	18	11	10		155	580	30	4
		40	14		3	66		198	320	220	5
	31	39	47		25	46		324	2,600	300	6
	5	15	39		7			273	130	20	7
	4	18			1	5		383			8
	32	110	7	1	20	35		485	40,000	22,100	9
2	21	14			3			94	3,000	1,350	10
1	1	247			4	3		705	1,900	1,200	11
3	4	153			6	5		212	3,250	2,400	12
3	2	12			2	20		96	3,700	1,800	13
	3	23						43			14
3	3	51	12		6	57		713	7,800	3,500	15
	2	37			6	3		87	900	650	16
	1	6			4	8		96	3,300	1,150	17
		3						217	2,100	1,150	18
	12	538			3	10		3,744	2,500	950	19
	6	192		50	28	4		748			20
	6	292	51		9	50		893	See Management		21
1	5	257			22	2		1,178	1,500	1,350	22
7	10	180			9			857	3,300	1,350	23
1	18	25			3	9		144	3,700	650	24
	7	7				2		39	5,800	3,200	25
	2	66		1		20		1,798			26
						11		112	300	400	27
								42	25	75	28
								24	150	50	29
								0	See Med. Lab. Tech.		30
								52			31
		11			34	41		431	1,350	700	32
						25		181	3,700	2,200	33
								0	140	10	34
		235						258	110	60	35
								26	850	325	36
								4	135	35	37
								0	275	75	38
								0	30	10	39
								0	50	15	40
		209			20	18		644	1,500	900	41

* Taken from Table 53 , pp 97-99

Table 73

UNDUPLICATED TOTAL ENROLLMENT

	OCCUPATIONS	APACHE	COCHISE	COCONINO	GILA	GRAHAM	GREENLEE	MARICOPA
	HOME ECONOMICS							
42	Child Care							812
43	Clothing Mgt., Prod. & Serv.	200		29				260
44	Food Mgt., Prod., & Serv.		49	56		2		351
45	Institutional & Home Mgt.							131
	BUSINESS & OFFICE							
46	Accounting & Computing	13	8	6		1		324
47	Business Data Processing	4	12	9		1		1,257
48	Filing, Off. Mach. & Cler.	368	134	87	27	16	1	2,635
49	Interoffice Communications	2	1	6	6			73
50	Materials Support	3	6					26
51	Personell, Steno., Sec.	5	184	54	33	52		3,551
52	Miscellaneous Office	2	47		7	2		67
53	Typing & Related	49	132	109	22	4		1,411
	TECHNOLOGY							
54	Eng. Technology					18		541
55	Automotive Technology					86		123
56	Civil Technology					2		82
57	Electrical Technology							52
58	Electronics Technology	92	41			25		2,165
59	Industrial Technology		49			20		106
60	Mechanical Technology					4		32
61	Data Processing Tech.					40		2,005
62	Drafting Technology					40		1,044
63	Welding Technology		52					277
64	Aviation Technology		28	1		1		
65	Professional Pilot Tech.		24					1,014
66	Avionics Technology							
	TRADE & INDUSTRY							
67	Cooling							61
68	Heating							
69	Ventilating							
70	Appliance Repair							89
71	Body & Fender		2	2				73
72	Mechanics	61	17	48	120	68	2	1,682
73	Aircraft Maintenance		3					122
74	Blacksmith		4					
75	Bus. Mach. Maintenance	48						41
76	Comm. Art							75
77	Comm. Photography		11					11
78	Carpentry	52	1	2	5	2	3	1,199
79	Electricity	9	12		25	1	1	536
80	Construction							53
81	Blueprint							504
82	Heavy Equip. (Const.)			1		1	3	64
83	Masonry				9		1	322
84	Painting & Decorating		1	5				180
85	Plastering						2	197
86	Plumbing & Pipefitting	14	4		43		3	265
87	Custodial Services			3	2		2	4

(Continued)

IN ALL PROGRAMS BY COUNTIES

MOHAVE	NAVAJO	PIMA	PINAL	SANTA CRUZ	YAVAPAI	YUMA	UNIDENTIFIED COUNTIES	STATE-WIDE TOTAL	CURRENT EMPLOYMENT*	TOTAL NEEDED 1971-75*	
	50	64	27			35		988			42
	55	824						1,368	5,400	2,900	43
	50	39				17		564	250	75	44
		84						215	4,200	1,600	45
6	2	132	15		60	2		569	8,300	3,900	46
6	1	135	42		23	7		1,497	2,100	1,700	47
38	307	546	81		52	52		4,344	3,700	3,250	48
2		32	9	48	4	13		196	2,700	1,400	49
		2			1			38	1,400	750	50
36	49	837	73	14	136	74		5,098	23,250	13,100	51
3	6	43	35		22	10		244	2,000	800	52
42	51	282	188	31	26	38		2,385	See Stenographic		53
			22			3		584			54
			105		85	106		505			55
			3					87	850	300	56
			16					68	1,450	900	57
		97	32		19	33		2,504	See Elec. Tech.		58
			2			1		178			59
			2		14	1		53			60
		91			124	181		2,441	550	500	61
			63		35	41		1,223			62
			111		18	37		495			63
			50					80			64
						1		1,039	250	50	65
								0			66
		7				48		116	550	350	67
								0	See Cooling		68
								0	See Cooling		69
								89	750	150	70
		2				1		80	675	175	71
30	66	369	274		12	100		2,849	2,800	1,300	72
		16						141	1,350	350	73
		1				1		6			74
	75	1				1		166	400	275	75
		1						76			76
	1	19						42	300	150	77
	54	230				2		1,550	4,400	250	78
5		119	34			2		744	2,550	350	79
		204				1		258			80
		1				8		513			81
		31	17					117	2,000	350	82
		103						435	1,250	125	83
		84						270	2,900	225	84
								199	400	-	85
		90						419	2,400	350	86
	2	4						17	3,400	1,550	87

* Taken from Table 53 , pp 97-99

Table 73

UNDUPLICATED TOTAL ENROLLMENT

	OCCUPATIONS	APACHE	COCHISE	COCONINO	GILA	GRAHAM	GREENLEE	MARICOPA
	TRADE & INDUSTRY (Cont'd)							
88	Diesel Mechanic							286
89	Drafting Occup.		2			1		518
90	Industrial Electricians			1	18			155
91	Lineman						1	89
92	Motor Repairman							
93	Electronics Occup.	600		19				446
94	Radio/Television		4	4				115
95	Drycleaning			1				1
96	Laundering							4
97	Foremanship			1				121
98	Graphic Arts Occup.		22					447
99	Instrument Main. & Repair				3			133
100	Foundry		3				8	13
101	Machine Shop		62		11			322
102	Machine Tool Operation	29	13				6	93
103	Metal Trades		12		12		6	42
104	Sheet Metal				2			225
105	Welding		43	1	10	9	3	416
106	Cosmetology		41	189	23	32		1,426
107	Fireman Training							262
108	Police Science		66					1,365
109	Barber			5				108
110	Cook/Chef	1		4				77
111	Meat Cutter							3
112	Waiter/Waitress	3		5				124
113	Refrigeration							370
114	Industrial Sewing							274
115	Tailoring							
116	Shoe Mfg/Repair							
117	Upholstery			1				62
118	Millwork & Cabinet Maker		1					107
119	Unidentified Occup.	788	337	27	47	145	22	4,935
120	TOTAL	2,404	2,017	1,702	475	762	130	46,929

(Continued)

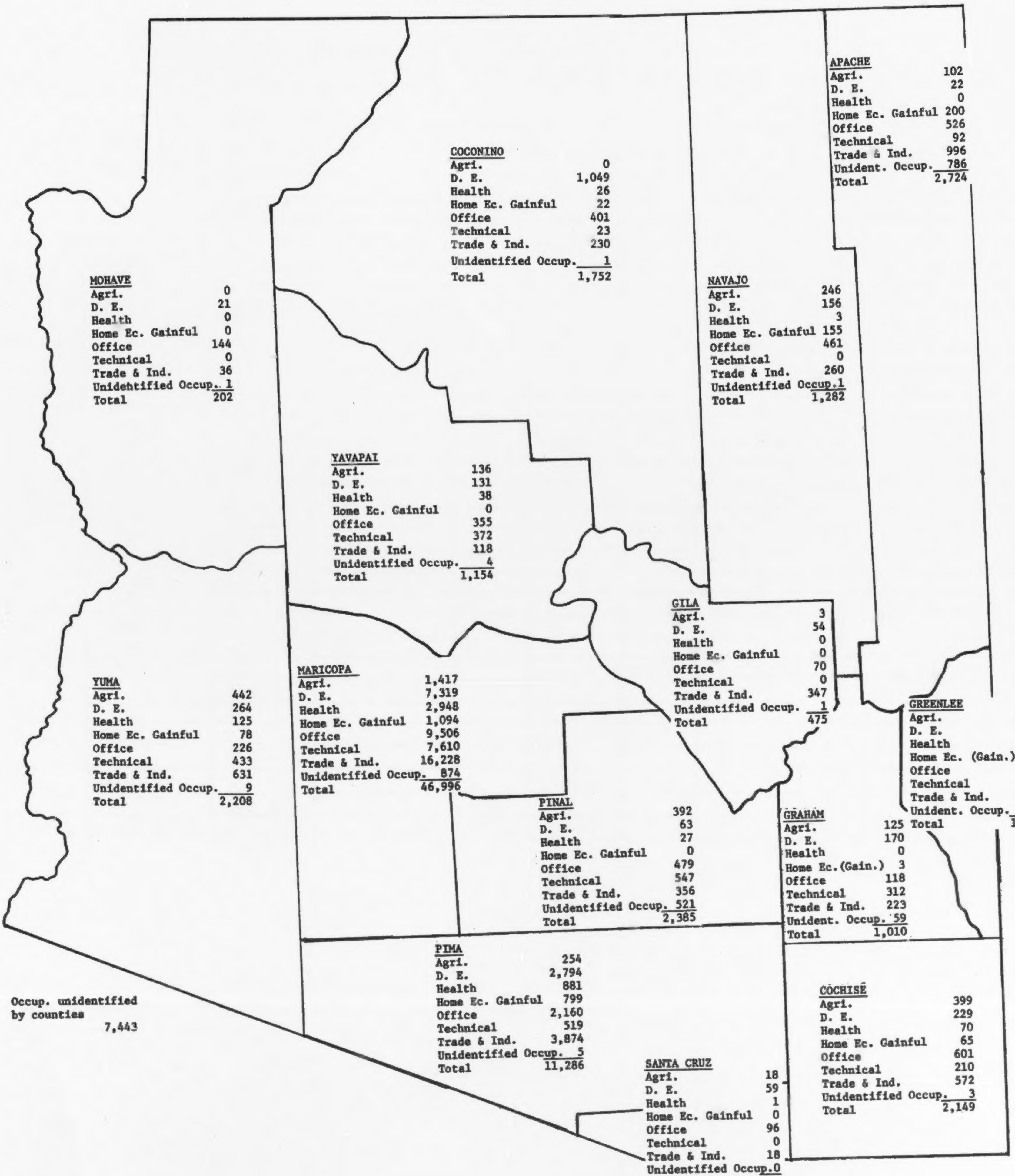
IN ALL PROGRAMS BY COUNTIES

MOHAVE	NAVAJO	PIMA	PINAL	SANTA CRUZ	YAVAPAI	YUMA	UNIDENTIFIED COUNTIES	STATE-WIDE TOTAL	CURRENT EMPLOYMENT*	TOTAL NEEDED 1971-75*	
		22	16					324	See Mechanics		88
		43	19			1		584	1,600	1,100	89
								174	See Elec. Tech.		90
		1						91	See Elec. Tech.		91
		10	29					39	1,300	175	92
		21				10		1,096			93
		37	6		14			180	600	125	94
		2						4	400	650	95
								4	SEE Drycleaning		96
			17					139			97
		63				1		533	1,400	600	98
		1						137	200		99
								24			100
	45	24						464	See Mach. Tool Opr		101
	5	17						163	2,900	1,300	102
		37			14	1		124	3,200	1,550	103
		81	17					325	2,000	600	104
		449	1		2	27		961	2,850	1,000	105
		35				19		1,765	8,400	. 1,600	106
			13					275	1,700	275	107
	1	3	15			213		1,663	2,400	675	108
		153						266	2,300	500	109
		6				2		90	5,200	3,500	110
		1				1		05	1,250	225	111
	2	1				3		138	8,500	4,600	112
		88						458	650	250	113
								274			114
								0	175	180	115
								0	175	180	116
		43	20					126			117
		8	10			1		127	700	225	118
13	56	1,925	553	5	108	204	7,443	16,608			119
202	1,136	10,421	2,320	168	1,071	2,202	7,443	79,382	170,295	68,310	120

Taken from Table 53, pp .97-99

Table 74

Career Education and Manpower Training, Public and Private, Totals by Service Area
July 1, 1969 - June 30, 1970



MOHAVE

Agri.	0
D. E.	21
Health	0
Home Ec. Gainful	0
Office	144
Technical	0
Trade & Ind.	36
Unidehtified Occup.	1
Total	202

COCONINO

Agri.	0
D. E.	1,049
Health	26
Home Ec. Gainful	22
Office	401
Technical	23
Trade & Ind.	230
Unidentified Occup.	1
Total	1,752

APACHE

Agri.	102
D. E.	22
Health	0
Home Ec. Gainful	200
Office	526
Technical	92
Trade & Ind.	996
Unident. Occup.	786
Total	2,724

NAVAJO

Agri.	246
D. E.	156
Health	3
Home Ec. Gainful	155
Office	461
Technical	0
Trade & Ind.	260
Unidentified Occup.	1
Total	1,282

YAVAPAI

Agri.	136
D. E.	131
Health	38
Home Ec. Gainful	0
Office	355
Technical	372
Trade & Ind.	118
Unidentified Occup.	4
Total	1,154

GILA

Agri.	3
D. E.	54
Health	0
Home Ec. Gainful	0
Office	70
Technical	0
Trade & Ind.	347
Unidentified Occup.	1
Total	475

YUMA

Agri.	442
D. E.	264
Health	125
Home Ec. Gainful	78
Office	226
Technical	433
Trade & Ind.	631
Unidentified Occup.	9
Total	2,208

MARICOPA

Agri.	1,417
D. E.	7,319
Health	2,948
Home Ec. Gainful	1,094
Office	9,506
Technical	7,610
Trade & Ind.	16,228
Unidentified Occup.	874
Total	46,996

GREENLEE

Agri.	86
D. E.	0
Health	0
Home Ec. (Gain.)	0
Office	1
Technical	0
Trade & Ind.	43
Unident. Occup.	0
Total	130

PINAL

Agri.	392
D. E.	63
Health	27
Home Ec. Gainful	0
Office	479
Technical	547
Trade & Ind.	356
Unidentified Occup.	521
Total	2,385

GRAHAM

Agri.	125
D. E.	170
Health	0
Home Ec. (Gain.)	3
Office	118
Technical	312
Trade & Ind.	223
Unident. Occup.	59
Total	1,010

PIMA

Agri.	254
D. E.	2,794
Health	881
Home Ec. Gainful	799
Office	2,160
Technical	519
Trade & Ind.	3,874
Unidentified Occup.	5
Total	11,286

Occup. unidentified by counties 7,443

COCHISE

Agri.	399
D. E.	229
Health	70
Home Ec. Gainful	65
Office	601
Technical	210
Trade & Ind.	572
Unidentified Occup.	3
Total	2,149

SANTA CRUZ

Agri.	18
D. E.	59
Health	1
Home Ec. Gainful	0
Office	96
Technical	0
Trade & Ind.	18
Unidentified Occup.	0
Total	192

can continue to expand in occupations and occupational areas where increasing future demand is almost a certainty, as for example electronics and the service industries. Beyond that, attempts to regulate enrollments in a large number of training programs according to projected estimates of manpower needs will perhaps have greater validity when the number of persons being trained is nearer the total needed. In the meantime, research in the state of the art of employment projections may produce better techniques as well as better information.

The Arizona Advisory Council for Vocational Education, in its first annual report, expresses strong dissatisfaction with the employment projections presently available while pointing out that neither the State Department of Vocational Education nor the State Employment Service were to be criticized for this problem. The Council's report refers to the discrepancies between enrollments in many training programs and projected occupational needs as indicating "the crudity of the available data and estimating techniques, the unreliability of the projections as a guide to preparing training slots, and the need for program flexibility to meet rapidly changing needs."

One of the main concerns of the Advisory Council is a universe of need for vocational education programs. This, of course, is directly related to the employment market and gives added emphasis to the problem of making reliable projections of future needs. The Council's report recognizes that political as well as educational policies are involved in determining target populations, priorities, and the use of resources and suggests that the Governor's office is the place where this should be done.

Another concern of the State Advisory Council is the complicated structure of administration and financial support through which vocational and skill training programs are provided. This is evident in the preceding chapters of the present report also, and it is true not only of Arizona but throughout the nation. Educators and public officials are keenly aware of the possible inefficiencies and duplications of effort and resources involved in such situations, but to what extent the total effort may be impaired in this way is not known. As the Council's report points out, if inefficiencies do exist they are impossible to measure.

The problem of skill training in outlying communities for job opportunities largely in Phoenix and Tucson is one the Advisory Council feels should be dealt with, and two solutions are proposed. One is to increase industrial growth and diversification throughout the state, and the other is "the development of more residential or other centralized multi-school-district school opportunities for students to receive desired training not economically feasible in their home communities." A third possibility is mentioned, to add high school level vocational training in some of the junior colleges which is already being tried with some success. A fourth possibility, which the Council did not mention, may be to follow the example of Cochise County if the innovations there produce the results at which they are aimed.

The Advisory Council agrees with the state and national goal of integrating vocational and academic programs "in such a way that the individual student can choose academic, vocational, or mixed programs without jeopardizing his graduation certification." Research, planning, and experimentation are recommended "in order to incorporate separate schools, skill center and educational tracks into the educational and social mainstream of the academic high schools."

Several of the efforts by the State Department of Vocational Education to improve and expand career education in the schools are strongly endorsed by the Advisory Council, notably the increasing emphasis on cooperative education. The State's shift to performance budgeting from institutional and service allocations is commended, but the Council notes that "there is no way to make comparison with earlier non-comparable data, and experience is too limited to permit detailed recommendations for change." The Council is very insistant that expenditure data for vocational education be developed as needed in cost-benefit analysis, and that eventually "per capital costs be broken down by type or programs and/or by geographic area or even by individual schools." Current research supported by the State Department in this area is not mentioned by the Council, but may be expected to receive the Council's strong support.

The Advisory Council, undertaking its first year of evaluation, was naturally distressed and sometimes appalled at the lack of data needed for such evaluation. Throughout the report repeated references are made to the absence of information and research directed toward program evaluation. The State Department's followup survey is recognized, but weaknesses even in that area are pointed out. Even though the council does give frequent recognition in its report to the research and data supplied by the Research Coordinating Unit to the State Department, and comments that "development of internal computerized reporting systems is well advanced in Arizona (which appears to lead the other states in this regard)," the constant frustration caused by gaps and omissions in the data available is clearly evident and quite understandable.

Conclusions

Career education in Arizona has been a responsibility of the public schools since before statehood at the turn of the century. Under federal and state support since 1917, vocational programs have grown from agriculture, home economics and a few trade and industry classes to more than 150 occupations today. Thirty percent of the students in Arizona high schools and 23.5% in the community colleges were enrolled in vocational education programs during the past year. Sixty-six percent of all institutional skill training in the state is administered by the State Department of Vocational Education, including MDTA and adult classes utilizing for the most part school facilities, equipment and instructional personnel. Private schools, special programs for the disadvantaged, the Bureau of Indian Affairs, and apprenticeship account for the rest. Altogether, 103,849 persons were enrolled in public and private training programs in Arizona during the past year. This figure includes home economics useful students, but does not include industrial arts or general business.

A consistant effort has been underway since 1962 in this state and since 1963 nationally to bring career education in the schools into closer alignment with both the needs of business and industry for skilled employees and the needs of students for saleable skills. This effort has involved major restructuring of programs, accelerated expansion of programs and enrollments, a number of totally new concepts in vocational education, closer coordination with business and industry, and a movement toward eliminating distinctions altogether between career education and academic education. Systematic planning with performance goals and annual evaluations has been inaugerated. Data systems and research have been developed on a continuing basis, and exemplary programs and innovations based on research are being established.

Considerable emphasis has been placed in recent years on career education and training for the disadvantaged and handicapped. In addition to numerous efforts in the schools to provide such students with special programs and special assistance, neighborhood programs under community and state direction have been established through federal support. The Bureau of Indian Affairs, the State Apprenticeship Council, and some of the private trade schools are also contributing to this effort.

A certain amount of confusion has been created by the multiplicity of programs for the disadvantaged, but coordinating committees at community and state levels have been established to avoid unnecessary overlapping and duplication of effort and resources.

Considering the total effort to provide career education and skill training in Arizona, the record of achievement is quite impressive. On the other hand, a number of questions are raised in the present study from which additional conclusions must also be drawn. First, to what extent are the needs for employable skills being met? The State Advisory Council in its report arrives at the conclusion that no answer to this question is possible until a universe of needs for vocational education is established. Who should get vocational education? Federal and state policy as well as many educators are committed to the concept of skill training for everyone -- pre-vocational skills for boys and girls in the elementary grades, job entry skills for every secondary school graduate including college preparatory students, and basic skills or advanced skills for adults who need training for employment. But this does not satisfy the Council's definition of a universe of needs because obviously it cannot be achieved, at least in the foreseeable future. Who should be trained now? And what kinds of training should be provided?

The Arizona state plan calls for a 10% increase in vocational-technical education enrollments each year for the next five years. Taking into consideration an anticipated increase in the total enrollment of 3% per year this would bring the number of students in training programs in the schools, including consumer homemaking, up to a level approaching 40%. The Council's question, and a very legitimate one, is this: If there are resources available only to provide skill training for one-third of those who need it today and even half five years from now, who should they be? Obviously they should be those who need it most. And the Council is asking for some definition of who the one-third or the one-half should be.

There are a number of indications in the present study that at least a direction toward such a definition is being followed. Most programs are aimed at serving those persons who are least likely to be headed for professional careers and most likely to require some kind of skill training even to get their first job. But this is roughly three-fourths of the student population, not one-third. Priorities therefore should govern their selection, and three such priorities have been set by Congress in the federal support program: students with social, economic or cultural disadvantages; students who are physically, mentally or emotionally handicapped; and students who are already out of high school.

These, of course, are by no means the only students unlikely to be headed for professional careers requiring at least four years of college, and many of them may not be the students most capable of acquiring the skills needed by business and industry. Additional priorities based on interest, aptitude, ability, and performance are needed; and to some extent they have also been established or are in the process of being established. The selection procedures through which students themselves enroll in vocational programs tend to weigh these factors. However inefficient the selection procedures may be -- due to inadequate counseling in the schools, for example -- educators and employers together have considerable knowledge of who can benefit most from different kinds of career education both in terms of individual accomplishment and employer satisfaction. Particular combinations of interest, aptitude, ability, and performance therefore constitute a second set of priorities.

The question must now be raised, are all students in either of these priority groups receiving career education? It is impossible to say because it is not known how many there are, who they are, or where they are located. But in looking at the distribution of career education in Arizona schools, it is not difficult to draw some conclusions. Two counties -- Maricopa and Pima -- enrolled 55,618 out of 79,382 persons receiving skill training last year in all programs public and private (excluding consumer homemaking). Most of the 7,443 additional trainees in special programs for the disadvantaged who could not be identified by county probably belong in this group also. Sixty-three thousand trainees selected from two counties and sixteen thousand from all the rest of the state would indicate that many persons in the priority groups in the outlying counties are not receiving career education or skill training. This is a ratio of four trainees in Maricopa and Pima counties to each one in the rest of the state. The population ratio is 2:7 to one.

This geographic imbalance of career education in Arizona is further born out when the distribution of kinds of training is considered. Programs are available in 105 occupations in Maricopa county and eighty-three in Pima county while altogether in Apache, Greenlee, Mohave and Santa Cruz counties only fifty-one occupational training programs were offered last year. None of the four counties by itself had even half that many, and students in Santa Cruz could only choose from seven occupations in which skill training was being offered by all agencies in the state, public and private. Each of the four lowest populated counties contains a substantial number of disadvantaged persons.

Even within Maricopa and Pima counties, actual access to career education in the schools is uneven. Phoenix Union High School is an area vocational school and enrolls students from other institutions. In a sense, all students in the county have equal opportunity to go there for their choice of thirty-four occupations in which training is available. But in fact, considering normal difficulties of transportation and dual registration, students in Glendale High School or Mesa High School for example -- twenty and twelve miles away -- do not have this choice. Mesa offers fifteen occupational programs and Glendale, where the percentage of disadvantaged is fairly high, offers eleven. These are only examples; the uneven distribution of career education is a general situation within the populous counties as well as in the state as a whole.

On the other hand, much of the expansion of training programs during the past few years under the leadership of the State Department of Vocational Education has been into new schools and schools where only limited offerings were available. In 1969-70 alone, 107 new occupational programs were added in secondary and post-secondary schools where they were not available before.

It may be concluded, therefore, that although many persons in the priority groups in Arizona are not yet receiving career education or skill training, they are the principal target populations as growth and expansion take place. This is evident in several ways. Efforts by the State Department to allocate funds and establish new programs for handicapped, disadvantaged, and post-secondary students are directed at one set of priorities. Efforts to improve counseling in the schools, the use of industry advisory committees, co-op programs, and research of the kind carried out in the health occupations and engineering technology are directed at the second set of priorities.

A further conclusion is that, while a universe of needs has not been specifically defined in Arizona, a system of priorities is in operation which may be just as effective and perhaps more realistic. The problems involved in getting agreement on any list of specific target populations, and then evaluating the state's total training effort on such a limited basis, would very likely result in directing excessive amounts of administrative time and effort into insignificant detail. As a model for growth and expansion, such a system of priorities may represent more an ideal than a formal program; but it is nevertheless contained in a variety of documents, policy statements, and administrative decisions. It is evident in the Arizona state plan and in the State Department's efforts to implement the state plan, both of which follow the federal legislation of 1968 and prior state legislation.

In summary, Arizona's system of priorities in career education and skill training consists of two first-level sets of priorities of equal value. Students with social, economic, and cultural disadvantages; students with physical, mental and emotional handicaps; and students already out of high school make up one set. Students who have the right combinations of interest, aptitude, ability, and performance to benefit most from skill training and who will be of most benefit to business and industry make up the other set. A second level of priority includes all students who will eventually seek employment without completing four years of college, roughly 75% of all elementary and secondary students. The third and final level of priority is the ultimate goal of career education -- every student enrolled in the elementary and secondary schools and every post-secondary student and adult who needs technical training, retraining, or additional basic education.

To the extent that such a system of priorities is indeed in effect in Arizona, logical and feasible goals for career education have been established. The next question is: To what extent are they being reached? Are the students who need training most at this time the ones who are being trained, and conversely, are the students now enrolled in career education courses and other training programs the ones who need most to be there? Are the programs offered at this time the ones business and industry most need students to be prepared in, and conversely, are the kinds of training and preparation needed most by business and industry now being offered in the schools? Do the one-year and five-year performance objectives of the state plan, based on the above goals and priorities, lead to these results? The answers are not yet available.

This leads to the next question and one of the most critical in any assessment of career education in this or any other state. How can the schools or the State Department of Vocational Education or the U.S. Office of Education know if the right students are being enrolled and if they are getting the right kinds of training and education? It is more than a problem of evaluation; it is a problem of necessary information on which to base evaluation. The U.S. Office has required certain kinds of quantitative data for several years, basically to know how many students were being trained and how many were being placed in jobs when they complete their training. More recently, since the 1968 legislation contains special provisions for the handicapped, disadvantaged, post-secondary, consumer homemaking, co-op, work study and exemplary programs, the numbers of students in these categories must be reported. However, virtually no effort is made to assure the accuracy of these statistics as reported by the states and in most cases there is little reason to believe they are accurate. In a few states, including Arizona, uniform collection procedures and automatic data processing have developed at least this much reliable information for evaluating career education, and while this is a good beginning it is far from adequate.

The need for additional information is clearly evident in the present study, as it was also evident to the State Advisory Council. Quantitative evaluation is severely handicapped without enrollment and followup data from non-vocational students as well as from those in vocational programs, and from trainees in all publicly supported manpower programs as well as from those in the schools. Cost evaluation -- including marginal cost comparisons between programs and between institutions, cost effectiveness, and cost efficiency -- is impossible without uniform detailed cost data from all institutions. Qualitative evaluation of program results is equally impossible without more sophisticated employment data, without statistical data which measure economic and social benefits other than immediate job placement, and without various kinds of subjective data from graduates, dropouts, employers, and perhaps other groups.

The problems in getting these kinds of data are very great but not insurmountable. In Arizona considerable initiative has been shown by the State Department of

Vocational Education, the State Employment Service, the universities and several community colleges and secondary schools in developing research and data systems. With sufficient support, the information necessary for proper evaluation of the state's entire effort in career education and skill training should be available within a relatively short time. Until then, the question of knowing if the right students are being enrolled and if they are in the right kinds of programs will remain critical.

One final question should perhaps be raised: To what extent do overlapping and competing programs waste public resources and reduce efficiency in the total effort to provide skill training in Arizona? Research in the present study neither confirms nor disproves that such a problem exists, but it is suggested by a multiplicity of publicly supported programs all with the same objectives. It is a question of some concern to the State Advisory Council, which recommends in its report that control over all manpower resources and training should be centralized in the Governor's office. Legislation has been introduced both in Congress and the state legislature to coordinate all manpower training, including some of the responsibilities now exercized by educational agencies and institutions, through the Department of Labor in the federal government and a newly created Human Resources Department at the state level.

In the opinion of a great many individuals and groups testifying before the Congressional Committees on this legislation, the cure would be worse than the disease, if indeed there is a disease. While the present study makes little if any contribution to factual knowledge on the subject, it does lead to the conclusion that other problems are much more pressing. There is no indication that duplication or overlapping of programs is a problem at all at the present time or in the forseeable future. On the other hand, there is a history in this state of cooperation among public agencies and institutions, and the distribution of skill training programs appears to be supplementary rather than competitive. The only exception to this may be in federally supported programs contracted to private industry in Phoenix and Chandler, yet in both cases after the programs got under way they seem to have found gaps to be filled in the overall training picture rather than compete with existing programs.

In view of the state's apparent success under a system of cooperating relationship between agencies, there would seem to be no compelling reason to substitute a centralized authority as recommended by the Advisory Council. Even if such a centralized authority were advisable, it is difficult to see what would be gained by placing this under the political control of the Governor's office rather than under the professional administration of the State Department of Vocational Education where two-thirds of all training and three-fourths of all publicly supported training is now being administered.

Recommendations

The recommendations which follow are based on the conclusions above and are addressed to school boards and schools in Arizona, to the State Board of Education and the State Board for Vocational Education, to the State Legislature, and the public. They coincide in several respects with recommendations made by the State Advisory Council for Vocational Education, and also with recommendations published recently by the National Advisory Council for Vocational Education. These points of agreement, arrived at from three separate approaches to the subject, are noted where they occur.

1. More use should be made of the schools than is being done at the present time in providing skill training for adults as well as youth. Facilities and equipment already available should not be duplicated elsewhere until maximum utilization is achieved through evening programs, weekend classes, and year-round scheduling. Expansion of these facilities to meet the needs of entire communities has greater potential benefit per dollar of cost than adding facilities elsewhere because of their utilization by students in multi-skill and occupational cluster programs as well as in single skill training. The need for more occupational offerings is as great if not more so than the need for more persons to receive training, especially in the outlying counties but also throughout the populous areas of Phoenix and Tucson. Civic leaders and educators alike have long deplored the costly practice of building schools to be used only seven or eight hours a day, five days a week, nine months out of the year. It is equally indefensible to build schools and limit their use largely to academic studies when at least three-fourths of the students must also have skill training and must go somewhere else to get it, usually at the taxpayer's expense. The State Advisory Council supports this concept in one of its recommendations:

> The geographic dispersion of Arizona's population and its industrial structure require the further development of multi-district secondary vocational education centers in order to provide vocational program choice to students without undue strain on the financial resources of the individual school districts. Job development, career guidance and use of the statewide job information system should be incorporated into the planning and activities of such multi-schools. The business community should actively participate in order to assure that enrollees learn really saleable skills.

Multi-district vocational centers offer one approach to developing community-wide facilities if they are not intended to exclude career education and skill training eventually in all communities. The National Advisory Council recommends that, "Every secondary school should be an employment agency." It points out the colleges and universities have operated employment offices for their students for years and says, "A school in which getting a job is part of the curriculum is more likely to have students who understand why reading and mathematics make a difference than a school which regards employment as somebody else's business."

2. Comprehensive career education programs should be established in all secondary schools. This is what the National Advisory Council is recommending. Many secondary school superintendents in Arizona are asking the State Department for help in getting comprehensive programs under way. All ten high school districts in Cochise County have joined together in a common effort to bring this about in their schools. The President of the State Board of Education has publicly advocated a program of this kind for years. It is essential if the modern concept of a career ladder rather than terminal education and training is to be fully realized. In a comprehensive program academic education and career education are combined so that all graduates have an open choice of going on to higher levels of education or seeking immediate employment. In either case, their opportunities for advancement are not closed because they can go back to school or into employment at successively higher levels, limited only by their interest and ability.

The National Advisory Council makes a strong point in favor of comprehensive education, as many others have done, in dealing with the dropout problem:

> This council recommends a basic change in the national attitude toward dropouts. Currently, they are considered failures. The President of the United States annually appoints a committee to keep them in school. Critics and citizens measure the performance of school systems by their

ability to reduce the number who drop out. Those who do drop out are considered disgraces, are lost by the school systems, and rarely welcomed back.

Where our educational system fails these young people is not so much in its inability to halt their early departure from school, as in its failure to recapture them later. A school system should in fact, as well as in theory, keep jurisdiction over the young people within its borders until they may be properly regarded as adults.

Comprehensive education is a goal which, if adopted, would require a number of years to implement and would involve considerable changes in curriculum, faculty, school organization, and facilities. It would take more money to operate than simply offering a basic college preparatory program supplemented by vocational courses for part of the students. It would, however, give many students in high school a reason for being there more easily understood by them and more easily justified in terms of cost than what they have at the present time.

3. Research should be expanded along three major lines each closely related to the others, and responsibility in each case as well as financial resources sufficient to carry out the responsibility should be provided. Economic research, educational research, and data systems are equally essential for career education and skill training to be capable of doing what they are supposed to do efficiently and effectively.

Arizona needs a computer-operated economic model of considerably more sophistication than is now available to use in all kinds of planning and development, and if one were available its use in making employment projections by complex occupational definitions would take at least some of the guess work out of matching skill training with employment opportunities. Research in changing occupational skills and knowledge, job analysis, combinations of skill requirements, and new technical developments should be continuously carried on and related to other economic variables. The Department of Economic Planning and Development and the Employment Service, working with the three universities, has the capability of doing this. These agencies and institutions in Arizona have an excellent record of cooperation in both basic and applied research, and given the necessary responsibility and funds they can provide educators with regularly updated information on the kinds of training needed, the kinds of persons needed, and much of the content that should go into skill training programs.

Educational research should be continuous, cumulative, and closely coordinated with what is being done all over the country as well as within the state. If career education programs are going to be kept up to date with advancing technology both in education itself and in business and industry, and if they are going to be operated efficiently and effectively, they must be based on a regular program of research rather than sporadic starting and stopping. It should be a total program which includes continuous identification of research needs followed by coordination with research available and in progress elsewhere, design and development of projects within the areas of greatest need, dissemination of results, field testing in exemplary programs, and full implementation as justified by results.

Arizona has a good working system for doing this but has not been able to put enough money into it to make it completely effective. A state-wide vocational research council representing educators, researchers, administrators, labor, business and industry has been inactive for most of a year because federal funds for sponsored research have been cut off and state funds have not been sufficient. From previous meetings of the council a wide range of needs have been identified, particularly research in career guidance and counseling, pre-vocational education and orientation to the world of work, and cost efficiency/effectiveness analysis. A number of projects have been designed and should be started, but it is as important to keep them going as to start them in the first place. Vocational research throughout the country suffers from lack of continuity due for the most part to lack of reliable support.

The need for data systems is most critical, and although Arizona has moved aggressively in dealing with this problem much more needs to be done. A student data bank for all secondary students should be established if for no other reason than to know who they are -- their interests, aptitudes, abilities and performance. The most obvious benefit from this would be in the use of computer-assisted career counseling, but it would also make possible the identification of target groups for priority career education and much more accurate measurement of the directions in which growth and expansion take place. A cost data system covering all educational programs, academic as well as vocational, and all publicly supported training programs, should be developed as soon as possible. Until this is done neither educators nor school boards and the legislature have any way of knowing what the actual cost is for any of these programs, and no way of knowing if they are worth the cost. It is not only desirable but crucial that data be available indicating what programs produce greater benefits per dollar spent than others, and perhaps where public funds are being used at such a high cost benefit ratio that even their social value cannot be justified. Cost data are needed in making proper decisions on what courses to add and what not to add in developing comprehensive high school curricula. Cost alone is by no means the only factor to be considered in expanding or changing educational programs, but it is far too important a factor to be left to "ball park" estimating and unreliable data as is too often the case at the present time.

In considering the need for expanding research in career education and skill training, consideration should also be given at both the federal and state levels of government to whose responsibility this should be and how the necessary funds should be provided. The Vocational Education Amendments of 1968 require that 10% of the federal allotments to the states be used for research, half of which goes to the states and the other half is reserved for projects of national significance. On paper this is an excellent idea, but in practice it has not worked as well as it should. Congress does not always appropriate the full 10%, and the President does not always use even what is appropriated. Last year the amount actually spent was one-half of 1%.

Assuming that Congress and the President were to follow the statutory provisions for vocational research support, it would still fall short of what is actually needed. A more realistic approach would be to use federal funds when they are available for sponsored research and use state funds for developing data systems, for economic research in the universities and state agencies, and for administering the total program including research dissemination. Responsibility for sponsored research coordination, and dissemination should remain with the Research Coordinating Unit. Responsibility for data systems -- at least after they have been developed -- should be given to the State Education Department's Data Processing Division. Responsibility for economic research should remain with the Department of Economic Planning and Development and the Employment Service, and the professional resources of the universities should continue to be used as needed. Each agency and institution should be provided with budgeted funds in the legislative appropriations for carrying out their responsibilities.

4. A better system of financing career education and skill training should be found. The National Advisory Council recommends federal support for all or most of the added cost over the cost of academic programs.

> A principal reason local school districts have been slow to make vocational education programs available to all who want them is that the initial costs of vocational education are higher than for college preparatory programs. The efficient way to use the Federal dollar to encourage vocational and technical education as career preparation is for the Federal Government to pay all or a substantial part of these extra costs.

Experience with federal support since 1963 has not been altogether reassuring, but the Council's suggestion is basically sound. Too often where the need is greatest local schools can least afford the added cost. State taxes are stretched almost as thin as local taxes, but support for career education at this level should probably be given more serious consideration. It should be based on actual needs of the schools rather than on matching federal funds or on what was appropriated the previous year. The interest of the state's own economy would probably justify a complete review of this appropriation. At the present time the added cost of skill training for half of the secondary students in Arizona would be an estimated $5.2 million, and for three-fourths of the secondary students $7.8 million.* Adding post-secondary and adult enrollments the total might be $18 to $20 million.** Nationally the additional cost of skill training in the schools could go as high as $2 billion to provide adequately for the present student population.

The question is, can the national economy afford this? And should it really be a federal responsibility, or should it be a federal-state responsibility with one level of government or the other underwriting the final cost? In any case, is this something that would be nice to do but other things must come first, or is it something without which the cost of rehabilitation programs, welfare, crime and violence would be even greater? Whatever the facts may be, their implications are serious enough to warrent finding out what can be done, what should be done, and what must be done.

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*This estimate is based on current costs in a few school districts in other states where fairly reliable cost data are available. Some occupational programs cost as little as $55 per student year more than academic programs while others run as high as $400, with $80 as the median.

**Estimates of post-secondary costs are based on preliminary data from the Maricopa County Junior College District in an unpublished report on per student costs of all programs including academic and technical in 1969-70.